Volume 92 Number 5

STEEL

For forty-eight Years—IRON TRADE REVIEW

PRODUCTION • PROCESSING • DISTRIBUTION • USE

The Week in Perspective

PETER WHITE on shipping the first barrel of iron ore from Marquette in 1857 and the Merritt brothers 33 years later on discovering the great deposits of the Mesabi would have scorned the prophecy that inglorious scrap and flue dust some day would become hurtful competitors of their red gold. Yet, in 1932, owing to these by-products, the consumption of ore per ton of pig iron produced declined to 1.4 tons, compared with a 10-year average of 1.7 tons and a theoretical ratio of 1.8 to 1. Ore shippers, reviewing last year (p. 11), find comfort in the coincidence of the falling curves of ore consumption and general business, maintaining that scrap has been favored because unduly depressed in price while ore has been reserved as an asset for bank credit.

Upward Sweep of Losses Is Checked

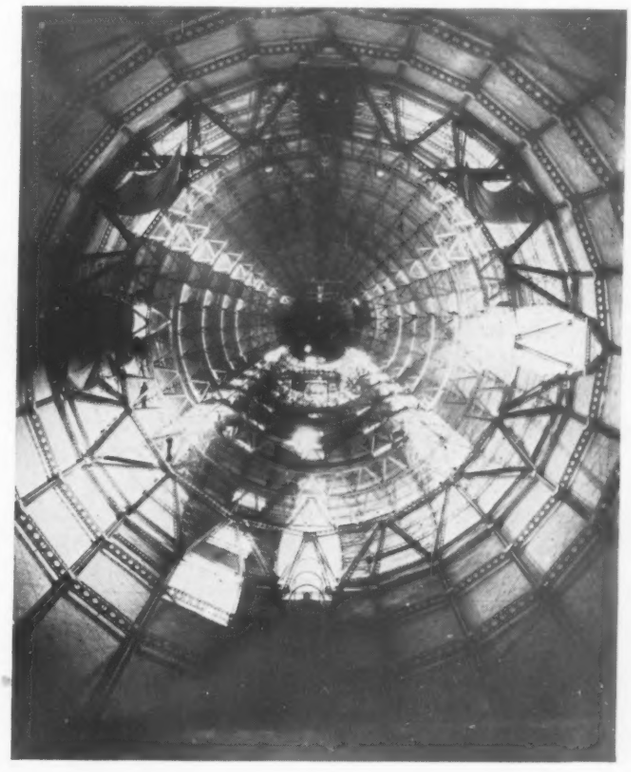
Deflation, however, has laid no more heavy hand upon the raw material phase of the great iron and steel industry than upon the finishing end. As financial reports are issued, it is apparent (p. 9) that the upward tendency of deficits was checked in the fourth quarter, but the vista for the year discloses a situation which only prudently-conceived surpluses could cushion. Only one integrated producer will show a profit for 1932. . . . Such a showing externalizes a competitive condition, which in the structural fabricating industry compels a reduction of 25 per cent in wages (p. 10). Blast furnace and steel mill labor, it is stated, is not affected.

Markets Struggle To Do Penance for 1932

Displaying unexpected virility derived from miscellaneous sources, the iron and steel markets continue to move to higher ground (p. 33). Another point has been acquired by the steel production rate, now at 19 per cent. . . . Not in months has the 14,000-ton pipe order booked (p. 41) by a Valley mill been equalled. . . . The automotive industry continues to shore up demand, but a new element arises (p. 13) in the way of strikes in Detroit plants. With its two sources of body supplies down, Ford has closed, but this delay may be to Ford's liking and bring volume production closer to the expected spring bulge in retail selling.

Tariff Bars Do Not a Prison Make

When imports of iron and steel fell off faster in December than did the outward movement, the foreign trade balance broadened, but the showing for the year is disquieting (p. 12). Exports declined from 968,996 tons in 1931



Wide World Photo

Find two men in the left foreground as a key to the size of the interior of the dirigible MACON *being built at the Goodyear plant in Akron, O. This view is from the tail of the ship*

to 594,691 in 1932, while imports contracted only from 421,108 tons to 378,282 tons. . . . World markets, however, appear somewhat brighter. The London cable reports (p. 48) that the Far East, India and South America are buying steel. . . . Canadian blast furnaces in December (p. 11) outdid any previous month of the year.

Steel Confines Those Who Steal

A prime requisite of modern prison and jail construction being the security of prisoners, reliance is placed upon steel, chiefly plates and round and flat bars interlocked at intersections. One well-known manufacturer (p. 21) favors 5-ply laminated plates consisting of three layers of low carbon steel with two inside layers of special alloy steel, all rolled into one plate at the mill. Bars also are of special analysis alloy steel. All steel is heat treated to survive repeated blows, resist cutting tools and withstand heat. . . . Something that business cannot withstand is ill-advised legislation, the Gray Iron institute was told (p. 10) at its recent convention at Chicago. The new code of specifications was lauded.

"Hit and Run" Items for the Engineer

Continuous normalizing of tin plate is winning favor, a Pennsylvania interest (p. 26) having placed in operation a natural-gas fired walking-beam type normalizer and air heater for drying black plate after tinning . . . . Seamless corrosion-resisting steel sinks, nonwelded and fabricated of one 18-8 chrome-nickel sheet in one major operation, are being produced (p. 26) in several sizes, all corners being rounded, edges usually squared but sometimes crimped, average weight 15 pounds . . . . A new metal for use in dairy equipment, highly resistant to the corrosive agents in that industry (p. 26), is a nickel-base alloy, containing 12-14 per cent chromium and about 6 per cent iron.

Entrants for 1933 Convention Derby

For third time, the National Metal congress and exposition goes to Detroit (p. 41), the date being Oct. 2-6, invitations already having been accepted by three major organizations. Naturally, the flavor will be strongly automotive . . . . Copper steels, X-ray studies, steelmaking problems and gases in metals will dominate the discussion at the meeting (p. 24) of the American Institute of Mining and Metallurgical Engineers in New York, Feb. 20-23 . . . . Its silver anniversary will be celebrated (p. 24) by the Institute of Metals when it meets in London, March 8-9. Albert Portevin, internationally known French metallurgist, presents the annual May lecture of the institute in London, May 10 . . . . Pacific coast steel executives meet (p. 14) at Del Monte, Calif., Feb. 9-11.

The VOICE of INDUSTRY

Communications appearing here do not necessarily reflect the opinion of STEEL *or of its editors.*

Money Standards and Commodity Prices

To the Editor:

Regarding the article by C. L. Perry on page 7 of the issue of Dec. 26, a clear case has been made that prosperity is reflected by rise in commodity prices. However, a more illuminating picture may be drawn from statistics on the cause of the fall of commodity prices, namely "the rise of the gold dollar."

As there is only a total of about $11,696,000,000 of gold in the entire world and Uncle Sam has nearly four billions of it, France more than three billions, the balance is scattered among the other nations in lesser amounts and since Great Britain and its dominions have the major part of the balance, it follows that most of the other nations, less powerful, are forced off the gold standard and which means that they have to do the best they can with what they can get.

If we want to get our money back, let us try to help them so as to make it possible to pay by first forcing stabilization of the exchange by asking the respective countries to meet us and work out some basis between their money system and ours and then asking them further to stabilize commodity prices on that basis of exchange. For instance, if we are able to stabilize as a minimum commodity price the value of steel, copper, iron, zinc, lead, grain, hay, wool, horses, cattle and products of forests and factory, as a prime test of cost (which means that it costs just so much to produce and cannot be sold for less than a minimum figure), then the other countries should be able to do likewise. This is especially true since the cost of production is related in every angle of its being to the value of gold in our country and the value of the money used in Mexico or China. Or better still, establish these relations by international agreement so that each nation can arrange its internal affairs on the basis of whatever standard each particular nation is on and arrange its import and export duties accordingly. Unless we do this we will continue in this demoralized and depressed condition indefinitely.

It is up to the business men, manufacturers, farmers and workingmen to get after congress with a big stick and not only bring about a solution for the United States but force a solution of the trouble on all other countries, to the end that business may again be revived.

Germany owes us about four millions on private loans, the Allies about eleven billions on war debts and the South American countries two or three billions. This country owes its taxpayers about 21 billions. Tell me where it is all coming from except from earnings and profits. As things are now there is stagnation, simply because our money system, exchange and interest rates have become jammed, internationally, so to speak. In other words, foreign nations on some other money standard are selling us goods at lower prices than we can produce them, regardless of tariff. If we met them in conference and said, "Here, your money is too cheap and unless you correct it, we will have to bar you entirely, but let's get together and work it out so that we can both get along," the chances are that an agreement would be reached.

This country does not yet realize what a power it is among nations and what it can accomplish if it takes a definite and decisive stand. I believe that if these questions are settled, the war debts and their payments will take care of themselves.

CHARLES W. BECK

Toledo, O.

Steel Deficits Reach New High But Rate of Gain Is Checked

FOURTH quarter financial reports of important iron and steel producers, which are now being issued, disclose further heavy deficits but an encouraging check to the rate of gain of these deficits.

Losses for 1932 are the largest for any year since the industry came of age. When all reports are in, it is probable that only the National Steel Corp. will show a profit for last year.

Because its meeting is scheduled for the last Tuesday of the month, which this year is Jan. 31, the United States Steel Corp. report follows that of most independents, which is an unusual condition.

It is believed that the Steel corporation will take conservative action on its preferred dividend, paying only a part, if any.

As a result, STEEL'S compilation of losses of the industry per ton of ingots produced necessarily is deferred until the Feb. 6 issue. The following reports, plus those of the Gulf States Steel Co. and Acme Steel Co., appearing in STEEL for Jan. 23, page 8, constitute the financial history of the quarter to date.

Bethlehem Loss Up Slightly But Outlook Is Improved

Net loss of the Bethlehem Steel Corp. in the fourth quarter of 1932, after charges, was $5,621,672, compared with $5,425,724 in the third quarter. The showing for 1932 thus is a deficit of $19,404,431, compared with a net income of $115,745 in 1931.

Commenting upon the situation, E. G. Grace, president, is moderately cheerful. Bethlehem's average operating rate for December was under 10 per cent, lowest in the history of the company, he declared, while at present 15 per cent operations are being maintained by incoming business.

The relative stability of production over the past six months is appraised by Mr. Grace as encouraging. The under-consumption of 1932 cannot continue indefinitely, he maintains. The prospect of tariff adjustments to offset the depreciation of foreign currencies is also a factor for encouragement.

Gross sales and earnings of Bethlehem for 1932 aggregated $98,467,226, compared with $186,541,195 for 1931. The value of orders on hand Dec. 31 was $30,568,937, against $23,598,882 on Sept. 30, the increase being largely due to the booking of a cruiser. On Dec. 31, 1931, orders totaled $41,514,877.

Cash and liquid securities as of Dec. 31, 1932, amounted to $46,975,589, compared with $50,278,721 on Dec. 31, 1931, a net decrease of $3,303,132, notwithstanding a net reduction of $10,759,457 in funded debt, the expenditure of $2,297,340 for additions and improvements and dividends paid during the year aggregating $6,640,000. This small decrease was due in large part to a reduction of $16,187,861 in inventories during 1932.

Jones & Laughlin Deficit Is Close to $8,000,000

Jones & Laughlin Steel Corp., Pittsburgh, reports net loss of $7,910,149 after interest, depreciation, depletion, etc. for 1932. This compares with net loss of $2,283,459 for 1931.

Net loss for the fourth quarter of 1932 was $1,717,290, against net loss of $1,682,919 in the third quarter and net loss of $1,549,948 in the fourth quarter of 1931.

Profit and loss surplus as of Dec. 31, 1932, was $56,885,951, contrasted with $67,291,440 at the end of 1931 and $74,749,352 at the end of 1930.

Dividend of 25 cents on the 7 per cent cumulative preferred stock was declared payable April 1 to record March 13. Previously, 75 cents quarterly had been paid.

Continental Loses $296,159

Continental Steel Corp., Kokomo, Ind., reports for the six months ended Dec. 31, 1932 net loss of $296,159. Change in the company's fiscal period prevents comparison with the corresponding 1931 months. Current assets, including $1,087,152 cash, amounted to $3,379,470, compared with current liabilities of $253,896. Total assets declined from $13,289,840 to $11,868,138.

Rumor Profit for National

The Dow-Jones News Service estimates that net profit of the National Steel Corp. in the fourth quarter was approximately $350,000, compared with $155,075 for the third quarter. For the year this would be a net profit of approximately $1,660,000, covering the 75 cent common dividend paid during the year and leaving a balance of about $42,000. The official report of the National Steel Corp. will be out shortly.

□ □ □

Atlantic Steel Co. and subsidiaries, Atlanta, Ga., reports net loss in 1932, after charges, was $156,187, compared with $105,805 in 1931.

□ □ □

Virginia Iron, Coal & Coke Co., Roanoke, Va., encountered a net loss of $33,352, after charges, in 1932, compared with net profit of $110,353 in 1931. Fourth quarter profit was $19,232, against profit of $25,036 in the same period of 1931.

□ □ □

Sharon Steel Hoop Co., Sharon, Pa., is asking holders of 5½ per cent sinking fund bonds dated Feb. 1, 1948, to accept payment for the Feb. 1 interest coupons in the form of $10 cash and $17.50 scrip. Scrip will be payable Feb. 1, 1936, and will bear interest at the rate of 5½ per cent.

□ □ □

Lukens Steel Co., Coatesville, Pa., bondholders' committee has announced that time for the deposit of bonds has been extended from Dec. 31, 1932, to Feb. 28, 1933. Approx-

Fourth Quarter and 1932 Showing of Bethlehem

	Fourth Quarter 1932	Third Quarter 1932	Year 1932	Year 1931
Total Income of Bethlehem Steel Corp. and subsidiary companies	*$ 566,937	*$ 541,756	$ 594,138	$21,386,694
Less—Interest Charges	1,699,324	1,697,488	6,896,980	7,426,039
Balance	*$2,266,261	*$2,239,244	*$6,302,842	$13,960,655
Less—Provision for depletion and depreciation	3,355,411	3,186,480	13,101,589	13,844,910
Net Income	*$5,621,672	*$5,425,724	*$19,404,431	$ 115,745
Less—Dividend declared on Preferred Stock	.....	.....	1,645,000	6,895,000
Deficit	$5,621,672	$5,425,724	$21,049,431	$ 6,779,255

*Deficit.

imately 80 per cent of the bonds already have been deposited.

□ □ □

Pittsburgh Gage & Supply Co., Pittsburgh, has declared effective the plan whereby a new closed issue of $150,000 in 6 per cent sinking fund bonds dated July 1, 1932, will be exchanged for a smaller amount of first mortgage 6 per cent bonds which were due at that date. New bonds are dated Jan. 1, 1942, and exchange was agreed to by more than 95 per cent of the bondholders.

□ □ □

United Engineering & Foundry Co., Pittsburgh, has declared the regular quarterly dividend of $1.75 on the preferred and a dividend of 25 cents on the common, both payable Feb. 10 to record Jan. 31.

□ □ □

Allegheny Steel Co., Brackenridge, Pa., has declared the regular quarterly dividend of $1.75 on the 7 per cent preferred stock, payable March 1 to record Feb. 15.

□ □ □

A. M. Castle & Co., Chicago, iron and steel distributors, report for the year ended Dec. 31, 1932, net loss of $161,197, after all charges. Earned surplus at the end of 1932 was $1,867,369, against $2,078,567 one year previous.

Ill-Advised Legislation Detriment To Business, Foundrymen Told

DANGERS of ill-advised legislation having to do with business and technical developments of the past year in the gray iron industry were considered at a clinical meeting held in Chicago, Jan. 26, under direction of the Gray Iron institute. More than 50 foundrymen from four states attended.

Speaking on legislation, Dean Ralph Heilman, school of commerce, Northwestern university, Evanston, Ill., approved the necessity of regulating public utilities, but deprecated the spreading tendency to permit government to encroach on private business.

The speaker stated that all social progress and individual welfare demands as little governmental restriction as is possible, consistent with protection of public life, safety and welfare, and urged support for all safeguards in maintaining individual competition. More than a million and a half laws, national, state and local, now circumscribe activities of the American people.

Praises New Code

The most important recent technical accomplishment, according to A. E. Hageboeck, Frank Foundries Corp., Davenport, Iowa, and president of the institute, was adoption through the American Society of Testing Materials of a new code of specifications for gray iron establishing tentative classifications based upon physical properties.

Promotion of acceptance of gray iron castings as reliable engineering material has been the basis of work of the institute's technical committee, stated A. J. Tuscany, Cleveland. Present tentative specifications will furnish a basis for a certification plan, now being considered by the directors. The problem of a classification of general uses, and the recommendation of a series of grades for specific purposes were discussed.

Light gray iron castings require more intensive study and this work has been undertaken, stated a report of E. B. Sherwin, Chicago Hardware Foundry Co., North Chicago, Ill. Ability to specify cutting rate in machining is particularly important in light, thin-section castings. The drill test, while suitable for comparison purposes is not regarded as sufficient. Like the transverse test, long used by foundrymen, it may be applied as a control test. It is proposed to conduct research on tensile, rigidity, machining and damping properties of light gray iron.

C. A. Ziebell, Universal Foundry Co., Oshkosh, Wis., urged wear and machining tests as extremely valuable. He appraised the work of the institute in raising standards as directly beneficial to stockholders and the public as well as to foundry operators.

A plan of reciprocal insurance adopted by members of the institute was outlined by Fred Erb, Eaton-Erb Foundry Co., Vassar, Mich., who reported savings of 50.5 per cent on premiums in the first year through the arrangement.

A. E. Grover, cost consultant of the institute, Cleveland, read a paper by J. J. Rowbottom, Diversey Foundry Co., Geneva, Ill., in which the need for adherence to a basic, uniform cost method was stressed. The cost per day of indirect labor and distribution of the burden are vital.

The habit of quoting by 100-pound weight unit was said to give undue importance to low-cost jobs in depressing market price. Costs per piece or per unit and the desirability of quoting prices upon a similar basis were urged. The buyer, it was said, has no appreciation of the influence of the labor factor upon price with any bulk commodity, price per pound basis of quotation.

Steel Index Is Ready

The index to Volume 91 of STEEL, *for the final six months of 1932, now is ready for distribution. Copies will be sent to all subscribers requesting them.*

Fabricating Shops Reduce Wages

WAGE rates in the shops of the two leading structural fabricating interests — the American Bridge Co. and the McClintic Marshall Corp.—have been reduced approximately 25 per cent.

This adjustment follows an unusually severe competitive situation, a condition probably not equalled in any other department of the iron and steel industry.

Wage rates in many small fabricating shops have been fluctuating widely, frequently varying for each job.

It is understood that a reduction in wages at iron and steel plants proper is not under consideration at this time.

Byers Rolls Wrought Billets

A. M. Byers Co., Pittsburgh, is now prepared to produce and sell wrought iron forging billets. The forging billets are produced by first converting pressed blooms into plates. Plates are then sheared to size, piled, and the pile is placed in a furnace and heated uniformly to a high temperature. After the slab pile is thoroughly soaked at a welding temperature, it is placed in a universal mill and rolled out into forging billets.

Making Beryllium Alloys

The Riverside Metal Co., Riverside, N. J., has begun the manufacture of beryllium copper alloys. It is producing beryllium copper in the form of rods, sheets, wire and strip.

Ore Consumption Cut by Scrap; Exceeds Shipments

NOT only were Lake Superior iron ore shipments in 1932 lowest in modern times, but less of the ore was used in producing a ton of pig iron than at any prior time on record. The reason was the larger proportionate use of scrap and flue dust. This was carried to a point where only 1.4 tons of ore was consumed in making a ton of iron, whereas in the past decade the ratio was 1.78, and the theoretical average with the use of the ore exclusively is 1.85.

This fractional difference between normal and actual ratios, in itself, meant for the Lake Superior ore producers a loss of 2,449,000 tons. Consumption last year amounted to 9,837,000 tons, for the production of 6,957,000 tons of iron by those furnaces using the ore. If the ratio had held at 1.76, then 12,286,000 tons of ore would have been required.

A significant sidelight is that the loss sustained by the ore producers through this invasion of scrap and flue dust was about 70 per cent as much as the tonnage of ore shipped from the upper lakes. In other words, instead of 3,588,608 tons, shipped, the figure might have been 6,037,608 tons, if the additional requirements had been supplied from upper lake mines at the ratio of 1.78.

Practice Cannot Continue

Blast furnaces probably will not be able to repeat their performance again this year. The driving down of pig iron prices compelled them in 1932 to use all the lowest-cost material they could scrape together. Flue dust and scrap spelled for the individual the difference between a heavier loss, an "even break," or a slight profit.

These could be written down at a cost much less than if the normal amount of ore was consumed. And in many instances ore piles were deliberately held in reserve as assets for bank credit. It was a striking contrast to customary practice, and none in the industry believes it can continue. The ratio of ore to iron, and the further consumption of ore must be increased.

Ore shipments in past years were considered somewhat as a barometer or forecast of industrial activity, because they held fairly constant with the trend in consumption, and producers made preparations in advance. But in 1932 they were restricted, almost stopped, in efforts to liquidate stocks. So mere mention of shipments tended to exaggerate conditions, at least those existing among consumers. For example, consumption was 2.7 times as large as volume of shipments. The following table shows how the usual relationship between shipments and consumption was thrown out of balance in 1932:

	Shipped (Gross tons)	Consumed
1932	3,588,608	9,837,000
1931	23,496,228	24,114,753
1930	47,184,869	45,192,180
1929	66,163,637	63,645,598

Stocks at lower lake ports and furnaces May 1, estimated at 27,000,000 to 27,500,000 will be excessive by 7,000,000 tons, though 6,000,000 tons less than reported May 1, 1932. A prediction as to ore shipments this year at this time would be absurd, because no one perceives how much steel will be made, or how far the expected improvement will stimulate scrap prices, and thus remove iron ore's most formidable competitor. The producer will not know what to expect until the time approaches for shipping, and the actual and probable extent of scrap competition. Other factors also will have an important bearing on shipments this year.

The Lake Superior Iron Ore association's current report of mine shipments in 1932, carrying forward the compilations initiated by STEEL and its predecessor, and presented in detail on page 51, shows that ore was moved from only 66 mines, compared with 139 mines in 1931, and 161 in 1929 and 1930. The average shipment per mine was 54,364 tons, lower than at any previous time in 31 years. In 1929 the average was 410,190 tons.

The United States Steel Corp.'s shipments were approximately 40 per

(*Please turn to page* 51)

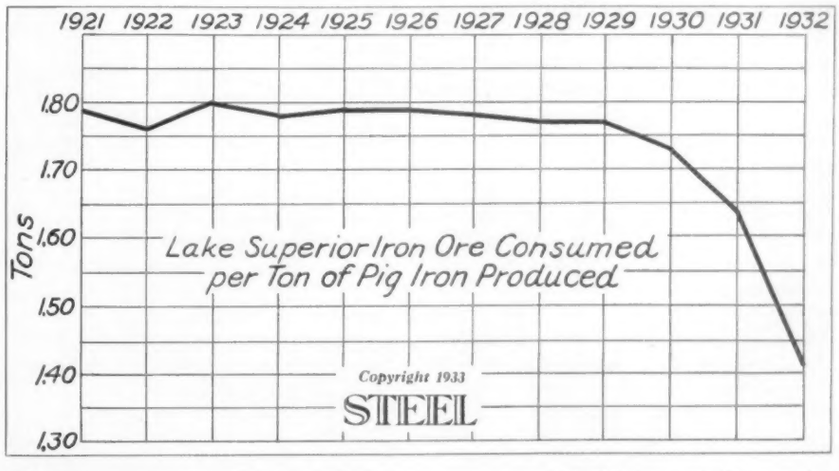
December Is 1932 High in Pig Iron in Canada

Output of pig iron in Canada in December was 27,031 gross tons, highest for any month in 1932 and a 91 per cent gain over the 14,149 tons made in November. Two blast furnaces were active Dec. 31, one at Sydney, N. S., and one at Sault Ste. Marie, Ont.

However, output of steel ingots and direct steel castings in December at 30,755 tons developed a sharp loss from the 37,088 tons of November. The 1932 production of ingots castings was 342,788 tons, compared with 672,109 tons in 1931.

Scully Steel Products Co. Name of Corp. Warehouse

Scully Steel Products Co. is the name adopted by the former Illinois Scully Steel Warehouse Co., Chicago, which recently took over the warehouse department of Carnegie Steel Co., Pittsburgh. The change in name is made to identify the organization more closely with the parent company, United States Steel Corp.



Blast furnaces using Lake Superior iron ore consumed 1.4 tons of the ore for every ton of pig iron produced in 1932, compared with 1.6 tons in 1931, and 1.78 tons the average for the preceding decade. If the normal ratio had been maintained, lake ore consumption in 1932 would have amounted to 12,200,000 tons, instead of 9,800,000 tons. Scrap and flue dust displaced ore to a greater extent than ever before. An improvement in steel production with consequent firming of scrap prices, curbing the formidable competition from scrap, would greatly benefit the ore industry this year

Iron, Steel Exports Decline Faster than Imports in 1932

EXPORTS of iron and steel products in December decreased only 1923 tons, to 54,118 tons, while imports fell off 3534 tons, to a total of 29,900 tons, according to the iron and steel division of the department of commerce, Washington.

Returns for the entire year 1932 reveal a tremendous loss in exports, the total for 1932 being 594,691 tons, compared with 968,992 tons for all of 1931. The latter figure was a heavy shrinkage from the total exports of 1930, which were 1,981,985 tons, and of 1929, which were 3,032,352 tons. Thus the decline in steel and iron exports has been 70 per cent from the level of 1930. From 1931, the decline in 1932 was about 40 per cent.

Some of the classifications showing the greatest losses in 1932 were plain structural shapes, which were 88,710 tons in 1931 and 14,885 tons in 1932; pig iron from 6719 tons to 2324 tons; steel bars from 42,512 tons to 15,370 tons. Exports of scrap rose from 136,125 tons in 1931 to 227,495 tons in 1932.

Decline in imports was slightly less in proportion. In 1932 the total was 378,282 tons, a loss of 10 per cent from the 421,089 tons of 1931 and of 60 per cent from the 965,268 tons in 1930. In 1929 imports were 739,004 tons. Pig iron imports increased from 84,454 tons in 1931 to 130,630 tons in 1932. Classifications showing lessened tonnage include structural shapes, 71,408 tons in 1931 and 36,545 tons in 1932; steel bars, 50,064 tons in 1931 and 30,611 tons in 1932; reinforcing bars, 38,828 tons in 1931 and 27,177 tons in 1932; ingots and blooms, 20,026 tons in 1931 and 2395 tons in 1932; scrap, 16,279 tons in 1931 and 9775 tons in 1932.

As to countries of origin of imports, Belgium met a sharp curtailment, from 128,653 tons in 1931 to 94,233 tons in 1923. France also lost trade, her shipments to this country in 1931 being 42,837 tons, down 9084 tons. Germany's sales to this country shrank from 86,021 tons in 1931 to 55,703 tons in 1932. Canada was another loser, her contributions in trade to this country in 1931 being 41,510 tons and in 1932 only 30,463 tons.

The United Kingdom increased its shipments from 20,233 tons in 1931 to 41,171 tons in 1932 and the Netherlands from 11,470 tons in 1931 to 77,661 tons in 1932. Imports from British India dropped from 67,921 tons in 1931 to 28,670 tons in 1932.

Changes in December imports and exports from November were not large as the totals were too small to allow a wide variation.

FOREIGN TRADE OF UNITED STATES IN IRON AND STEEL

Gross Tons

	1932		1931	
	Imports	Exports	Imports	Exports
Jan.	31,053	40,660	41,628	92,719
Feb.	26,738	40,492	28,045	91,161
March	41,031	49,927	40,402	109,324
April	36,339	58,118	47,872	101,434
May	39,751	80,477	37,176	95,046
June	34,494	52,081	37,819	75,577
July	18,005	52,558	37,190	84,465
Aug.	**23,623**	**32,955**	**30,139**	**73,338**
Sept.	29,241	36,038	30,966	69,778
Oct.	33,693	41,226	29,401	59,335
Nov.	34,924	56,041	34,658	59,556
Dec.	29,390	54,118	25,812	57,263
Total	378,282	594,691	421,108	968,996

ORIGIN OF DECEMBER IMPORTS

Gross Tons

	Iron ore	Pig iron	Manganese ore	Ferromanganese
Soviet Russia	7,970	.....	.....	.....
Mexico	166	.....	.....	.....
France	.....	97	.....	.....
Netherlands	.....	6,639	.....	.....
Sweden	.....	114	.....	.....
United Kingdom	.....	5,861	.....	110
Japan	.....	98	.....	.....
British India	.....	1,435	.....	.....
Cuba	.....	.....	2,279	.....
Norway	.....	.....	.....	312
Canada	.....	.....	.....	577
Total	8,136	14,244	2,279	999

	Steel ingots	Steel scrap	Steel bars	Cast iron pipe
Belgium	23	.....	824	.....
Norway	5	.....	.....	.....
Sweden	56	.....	207	.....
Canada	2	.....	1	.....
France	.....	.....	426	.....
Germany	.....	.....	156	.....
Netherlands	.....	.....	1	.....
United Kingdom	.....	.....	89	.....
Austria	.....	.....	3	.....
Czechoslovakia	.....	.....	5	.....
Total	86	.....	1,712	.....

IMPORTS OF IRON AND STEEL PRODUCTS INTO THE UNITED STATES

Gross Tons

Item	Dec. 1932	Nov. 1932	Dec. 1931
Pig iron	14,244	8,776	1,039
Sponge iron	22	5	.....
Ferromanganese, spiegeleisen (1)	999	3,326	917
Ferrochrome (2)	42	18	.....
Ferrosilicon (3)	5	.....	8
Other ferroalloys	36	.....	245
Scrap	.....	87	341
Steel ingots, blooms, billets, etc.	86	94	2,399
Concrete bars, etc.	903	1,474	2,030
Hollow bar, drill steel	73	103	51
Merchant steel bars	1,711	3,150	4,564
Iron slabs	3	7	1
Iron bars	44	9	33
Wire rods	1,149	935	662
Boiler, other plate	1	10	22
Sheets, skelp, sawplate	1,262	3,693	235
Tin plate	1	21	16
Structural shapes	4,166	5,655	5,646
Sheet piling	.....	.....	.....
Rails, rail fastenings	245	383	285
Cast iron pipe, fittings	.....	50	21
Welded pipe	361	434	407
Other pipe	130	89	159
Barbed wire	521	1,876	1,675
Round iron, steel wire	105	102	118
Telephone, telegraph wire	3	2	3
Flat wire, strip steel	91	131	96
Wire rope, strand	146	148	165
Other wire	123	243	24
Hoops and bands	1,777	2,741	4,250
Nails, tacks, staples	1,051	1,199	335
Bolts, nuts, rivets	26	33	5
Horse, mule shoes	29	22	.....
Castings, forgings	33	108	60
Total	29,390	34,924	25,812

(1) Manganese content.
(2) Chromium content.
(3) Silicon content.

Marion Plant on Overtime

Anaconda Wire & Cable Co., Marion, Ind., is operating on a full schedule, with some departments working overtime. Schedules have improved each month since August, due largely to requirements for government projects.

EXPORTS OF IRON AND STEEL PRODUCTS FROM THE UNITED STATES

Gross Tons

Item	Dec. 1932	Nov. 1932	Dec. 1931
Pig iron	71	160	406
Ferromanganese and spiegeleisen	5	.....	53
Iron and steel scrap	30,148	29,184	5,973
Ingots, blooms, billets, slabs, sheet bars	7	31	92
Iron bars	29	24	30
Steel bars	1,432	1,106	2,605
Alloy steel bars	74	107	88
Wire rods	1,103	472	2,162
Boiler, other plates	710	957	1,216
Skelp, iron or steel	167	4,068	2,265
Iron sheets, galvanized	88	121	235
Steel sheets, galvanized	1,510	1,408	3,471
Steel sheets, black	2,309	2,929	6,324
Iron sheets, black	76	128	378
Hoops, bands, strip steel	892	1,276	1,612
Tin plate, terneplate	4,118	2,275	5,820
Water, oil, gas, other tanks, except lined, etc.	365	597	488
Shapes, not fabricated	637	1,014	4,368
Shapes, plates, fabricated	835	813	764
Metal lath	127	57	152
Frames, sashes and sheet piling	232	551	928
Rails	361	500	4,137
Rail fastenings	136	257	366
Boiler tubes, seamless and welded	300	450	346
Casing and oil-line pipe	444	1,279	1,008
Seamless black pipe, other than casing (1)	57	67	.....
Malleable-iron screwed pipe fittings	136	119	251
Cast-iron screwed pipe fittings	67	76	80
Cast-iron pressure pipe and fittings	89	180	726
Cast-iron soil pipe and fittings	317	27	445
Welded black and galvanized steel pipe	2,196	1,790	3,919
Welded black and galvanized wrought-iron pipe	213	355	366
Riveted pipe, fittings (1)	3	5	.....
Plain black or galvanized iron or steel wire	731	404	978
Barbed wire and woven-wire fencing	1,348	904	1,630
Woven-wire screen cloth	43	51	47
Wire rope	123	107	180
Insulated iron or steel wire and cable	2	2	22
Other wire and manufactures	194	167	340
Wire nails	701	711	1,161
Tacks	41	30	81
Other nails, staples	270	219	275
Bolts, machine screws, nuts, rivets, washers	307	206	284
Iron castings	564	370	230
Steel castings	69	42	64
Car wheels and axles	243	257	583
Horseshoes	2	18	4
Forgings	226	170	306
Total	54,118	56,041	57,259

(1) Not shown prior to 1932.

MIRRORS OF MOTORDOM

DETROIT

FORD MOTOR CO. came up to the end of last week with a sufficient number of the new 112-inch wheelbase V eights to display at the national automobile show which opened at Chicago Saturday and to stock some "key" dealers, but with quantity production tied up by a strike at the Briggs and Murray body plants here.

Assembling, which was started ten days ago and was being pushed up to 1000 units daily, five days a week, as rapidly as possible, became irregular early last week. On Thursday, the day before display models were to be moved into the Chicago show, it was decided to close completely rather than permit a large oversupply of engines and other parts, not affected by the strikes, to accumulate.

The shutdown was made effective at branch assembly plants as well as at Fordson, and holdups were issued on most material and parts orders. At several parts plants where strikes were ordered prior to the demonstration at Briggs and Murray, settlements are understood to have been effected, and there is no reason for expecting any protracted disturbance at these body plants.

Ford dealers, in some cases burdened with a number of the eights which are now being supplanted, have groaned as their competitive Chevrolet, Plymouth, Willys, Terraplane and Continental dealers have been pushing their new models.

They have grown restive, and a number have shifted to competing lines. There has been some opinion in Detroit that Ford was not pushing the new lines with all the vigor possible, even discounting the extraordinary delays attending a Ford change.

The Ford charge last Friday that bankers were trying to "prevent another Ford car leaving the factory" presented a new aspect. Since Briggs and Murray work so closely with Ford that the latter buys the steel fabricated into Ford bodies, it is not believed a major policy such as wage reductions was adopted without apprising the Ford organization.

Ford officials are reputed to believe that substantial buying will not appear until spring. The fact that plenty of time is being taken with the smaller eight, on a 105-inch wheelbase, which probably will not be introduced for 45 to 60 days, is an indicator. Hence, any delay in getting out the new models is not believed to be costly, excepting of course the vexation of dealers.

Incidentally, when Ford advertising, other than the fanfare at the time of announcing the new models, reappears it may be accepted that Mr. Ford and those in his confidence have decided that recovery is at hand.

Hear Wages Below 20c

The labor difficulties of the past week have precipitated a great deal of discussion, not all of it unfavorable to the strikers. Some skilled labor, it is reported, has been reduced to 20 cents an hour and less, and radical leaders have encountered surprisingly little opposition from the disgruntled workmen. In some cases, considering the short week, workmen do not appear to be paid much more than the $3.50 weekly dole which can be obtained at the Detroit city hall.

In fairness to automobile manufacturers generally it must be said that they have held their wage rates beyond criticism, nevertheless there is a general tendency to bear down more heavily on costs, including materials. In this connection it is pointed out that the great bulk of sales, including those of the low-price models, are being made to persons in moderate to good circumstances.

These buyers, it is contended, are not influenced by the last $25 or $50, and the addition of this much to the f.o.b. price of most cars would not affect the demand appreciably. But this sum spread out in a more generous attitude toward material suppliers and labor would prove a powerful stimulus, a good many believe.

This delay in getting the larger new Ford under way probably will react favorably upon the February showing of the industry. January assemblies are expected to pass the 119,344 of last January by a narrow margin. Last February, output was 117,413 units and this February will not develop much deviation.

Chevrolet continues what approaches the proportions of a sweep in the low-price field. On a recent day its assemblies were at the rate of 160 per hour, for 19 hours, indicating a weekly total close to 15,000 units and a probable January output of about 57,000 units. The preliminary schedule for February shows a slight reduction, but it is believed that with deliveries in arrears there will not be much of a letdown.

Ford, as noted, has 5000 weekly, or a monthly rate of 20,000, as the immediate goal. Plymouth has scheduled about 13,000 for February, the same as for January, though a shrinkage here would not be surprising. Willys made about 5000 fours in January, has scheduled 7000 for February, and in March, when the six will be in quantity production, expects to top 10,000.

Olds has been shooting at a mark of 250 daily, six days, for the new line, but several days last week was down altogether on the eight because of difficulties in stamping the lower portion of the radiator grill.

Current weekly production is about

1900 for Buick, 175 for Cadillac-LaSalle, 300 for Chrysler, 350 for Continental, 600 for DeSoto, 1300 for Dodge, 300 from Graham, 700 for Hudson, 200 for Hupp, 2250 for Pontiac, 125 for Reo, 825 for Rockne and 150 for Packard.

Of other manufacturers, the Auburn-Cord weekly schedule is about 300, Nash 625, Pierce-Arrow 100 and Studebaker 625. Austin, which is pushing its light delivery model priced at $275 to $405, assembled 1300 units in January and has 900 scheduled for February.

Fear Retards Auto Buying

In the Jan. 9 issue, under the heading "The Auto That Jack Bought," was told the true story of the partsmaker employe who was dismissed because, on being re-employed, he promptly made a down payment on an automobile. Fortunately, he had purchased a car of the make for whom his employer was manufacturing parts, and when the automobile manufacturer heard of the incident and canceled his parts order the partsmaker reinstated the employe.

This has aroused considerable comment. There is some thought that the partsmaker went too far in dismissing his employe, but that in view of the uncertainty as to how long the plant could operate he would have been justified in at least warning the employe that work that would enable him to meet his payments was not assured.

Evidently, too, there is considerable buying that is being discouraged because of fear of the attitude of employers. More than one dealer can recount prospective buyers, at present employed and in funds, who hold back because they fear they might expose themselves to a wage reduction or dismissal if their employer was aware they could afford a new car.

Coast Steel Men to Meet

Ninth annual meeting of the Iron and Steel Allied Industries of California will be held at Del Monte, Calif., Feb. 9-11. Discussions will deal with the foreign steel situation, profits in merchandising and business co-operation. Among the speakers will be Charles F. Abbott, executive director, American Institute of Steel Construction Inc., New York.

Books Sheet Mill Motors

Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., has booked orders for electric motors and control apparatus costing $110,000, for rehabilitation of some of the plants of an important steel sheet manufacturer.

Business News Of Washington

JAMES A. FARRELL, retired president of the United States Steel Corp., appeared before the house ways and means committee Jan. 27 as a representative of the United States chamber of commerce, to urge immediate passage of the depreciated currency bill, which would supplement the tariff in barring imports from countries where the rate of exchange is highly favorable. He declared that the situation is acute and requires immediate attention.

T. W. Kennedy, of the Mystic Iron Works, Everett, Mass., also was a witness. T. J. Dougherty, tariff counsel for the American Iron and Steel institute, and J. Carson Adkerson, president of the American Manganese Producers association, attended the hearing but did not testify.

□ □ □

President Hoover feels strongly the need for immediate action in connection with the depreciated currency situation. He sees two remedies, one to increase the United States tariff and the other to persuade foreign countries to return to the gold basis and stabilize their currencies.

The latter, the President is convinced, is the preferable course and would afford the greatest protection for American labor. He feels the situation will become worse unless something is done about it shortly.

□ □ □

The senate finance committee has favorably reported out a resolution calling for an economic investigation by its own membership and two resolutions calling upon the tariff commission for information for tariff bargaining.

In the meantime, the tariff commission, even before the passage of the resolutions, which are forgone conclusions, has begun its work on the information desired in order to have it available by March 1 as called for.

The iron and steel division of the commission and all of the other commodity divisions of the commission have put their other work aside and are rushing through this desired information.

It was publicly stated by Senator Costigan, who introduced the tariff resolution, that he wanted the information available for the incoming administration, lending more weight to the statements already made that Mr. Roosevelt intends to carry on tariff bargaining in an effort to help the tariff situation. It seems practically certain at this time that the tariff will not be revised, schedule by schedule, as has been done in the past.

One of the resolutions favorably reported calls for a study and investigation by the senate finance committee of the "present economic problems of the United States." One of the Costigan resolutions calls for a report from the tariff commission "of relative imports of certain commodities (including iron and steel) for designated years, and for certain other information concerning imports and exports."

The third resolution, also introduced by Senator Costigan, calls for an analysis "of the import and export trade with certain foreign countries, and for other information concerning tariff problems."

□ □ □

April 17, the Monday after Easter, is tentatively discussed as the date when the special session of congress will be called by President-elect Roosevelt. Since the adoption of the "lame duck" constitutional amendment obviates the session ordinarily called next Dec. 4, the special session may be longer than otherwise contemplated.

The Roosevelt program is said to include economy legislation, legalization of beer, farm relief and first steps toward repeal of the eighteenth amendment, but no tariff legislation. A proposal to unify control over all forms of transportation may be considered.

□ □ □

Bureau of standards is mailing to interested companies a simplified practice recommendation covering wire diameters for mineral aggregate production screens. The recommendation reduces by 75 per cent the number of wire diameters now used.

□ □ □

Interstate commerce commission has found that rates on used steel rails, in carloads, from Cairo, Boydville, Cyrene and Sessoms, Ga., to Jacksonville, Fla., for export, are not inapplicable or unreasonable. The complaint, filed by the Garson Iron & Steel Co., against the Atlantic Coast Line railroad, has been dismissed.

Employment Index Down

Washington—The December index of employment in the iron and steel manufacturing industry was 52.1, compared with 53.2 for November, and 63 for December, 1931, taking 1926 as 100, according to the bureau of labor statistics. The entire iron and steel industry and their products, not including machinery, had a December employment index of 51.4, compared with 53.2 for November and 64 for December, 1931.

Industrial Men in the Day's News

Aldus C. Higgins, President, The Norton Co.

THE son of the founder now heads the company, Charles L. Allen becoming chairman of the board.

STARTING in research work, Mr. Higgins became adept, winning a coveted medal for a new type of electric furnace.

IN addition to promoting the interests of his organization, he has been active in civic affairs of Worcester.

ALDUS C. HIGGINS, who was elected president and general manager of the Norton Co., Worcester, Mass., Jan. 17, is a son of one of the founders of the organization, Milton P. Higgins, and has been connected with the Norton company since 1900 in various executive capacities.

Associating with the company following graduation from the Worcester Polytechnic institute and the National Law School, Mr. Higgins entered the research laboratories and subsequently became manager of the research and abrasive plants.

While serving as head of these departments Mr. Higgins developed an electric furnace for the fusing of abrasives, for which he was awarded the John Scott medal. Mr. Higgins was elected secretary of the company in 1912, Charles L. Allen, long president and general manager, becoming treasurer at the same time. Mr. Higgins was named treasurer in 1919, again succeeding Mr. Allen. He also became general counsel for the organization. He held the office of treasurer until recently elevated to the presidency. A few years ago he relinquished the duties of general counsel to Clifford S. Anderson.

Mr. Higgins' father formerly was head of the Washburn shops of the Worcester Polytechnic institute, and the group of founders, during the steady growth of the Norton Co., has had the close advisory co-operation of a younger group, made up largely of the sons of the founders. Mr. Higgins is a civic leader in Worcester.

CHARLES L. ALLEN, for 47 years general manager of the Norton Co., Worcester, Mass., and president of the company since 1919, became chairman of the board of directors at the annual meeting of the Norton Co. and subsidiary companies Jan. 17. Aldus C. Higgins, former treasurer, becomes president and general manager, taking over the activities of Mr. Allen, as noted above.

George N. Jeppson, vice president in charge of production, and former secretary, retained the production vice presidency and assumed the treasurership, while Clifford S. Anderson, assistant secretary and general counsel, becomes secretary, clerk of the corporation, and also remains as general counsel.

W. LaCoste Neilson remains vice president and general sales manager. The post of manager of research and abrasive plants, held by Lewis E. Saunders for many years, becomes an elective position filled by the directors, and Mr. Saunders was returned to that position.

Mr. Allen will still be actively connected with the company's operations by virtue of his chairmanship of the directorate, a post unfilled since the death of George I. Alden several years ago.

Henry Duckworth was re-elected assistant treasurer and comptroller, while Clarence W. Daniels was renamed plants engineer, also made an elective position for the first time.

Norton Co. directors re-elected are Messrs. Allen, Higgins, Jeppson, Neilson, Saunders, Duckworth, Daniels and J. Herbert Johnson, all of Worcester, and Francis E. Gallagher and John A. Manning, both of Troy, N. Y.

Up to Jan. 17 Mr. Allen has been the only general manager which Norton Co. has had. He was appointed to that position when the parent concern of the present organization, the Norton Emery Wheel Co., was organized in 1885. He was elected secretary of the company in 1892, and in July, 1912, was made treasurer. When the Norton Grinding Co. and Norton Co. merged in 1919 he was elected president of the concern to succeed Mr. Alden, who became chairman of the board of directors.

During the time Mr. Allen has served as general manager, Norton Co. has grown from a small concern occupying a corner of the old pottery shop operated by the late F. B. Norton on Water street, Worcester, to an organization with its affiliated factories in Chippawa and Hamilton, Ontario, Bauxite, Ark., Wesseling,

bez Coln, Germany, Welwyn Garden City, Hertsfordshire, England, and La Courneuve, France.

In addition to his Norton connection, Mr. Allen has been prominently identified with the development of industrial and civic Worcester. He has served as a director on a number of Worcester business firms and has held civic posts in connection with the development of a number of projects. As a director he has been connected with the Riley Stoker Co. and several Worcester banks.

□ □ □

Mark W. Lowell and C. B. Nolte have been elected directors of Crane Co., Chicago.

□ □ □

H. M. Lucas, president, Lucas Machine Tool Co., Cleveland, has been re-elected president of the Associated Industries of Cleveland.

□ □ □

E. Hanin, of Hanin & Blum Inc., New York, has been elected president of the Empire Metal Merchants association, succeeding N. Sacks. The association comprises the principal dealers in secondary metals in New York.

□ □ □

Capt. F. X. A. Eble, commissioner of customs since July 8, 1929, has resigned and has been appointed treasury attache to the American Embassy in Berlin. He held this position before he became commissioner.

□ □ □

O. B. Wilson, formerly manager of the Cleveland office of the Brown Instrument Co., Philadelphia, has been appointed district manager of the territory comprising Texas, Louisiana and Southern Arkansas with headquarters at Houston, Tex.

□ □ □

Howard A. Holmes, recently assistant district sales manager at Chicago for the Weirton Steel Co. and prior to that in the Detroit office of the company, is now identified with the Detroit sales office of the Inland Steel Co. J. H. Fitch is Inland sales manager at Detroit.

□ □ □

K. W. Atwater, for the past five years associated with H. A. Brassert & Co., Chicago, and vice president of the American Demag Corp. in Chicago, has established new headquarters in Pittsburgh in the Investment building there as Pittsburgh representative of the American Demag Corp.

□ □ □

A. C. Cook, of the Carnegie Steel Co., Youngstown, O., was elected president of the Society of Ohio Safety Engineers at the annual meeting at Cleveland, Jan. 15. He succeeds James M. Woltz, of the Youngstown Sheet & Tube Co., who held the office continuously for 15 years. Joseph A. Voss, of the Republic Steel Corp., Youngstown, O., was chosen treasurer.

□ □ □

E. A. Livingstone, for the past six years associated with the A. O. Smith Corp., Milwaukee, as sales manager of its Los Angeles, Tulsa, Okla., and New York offices, has been appointed a sales representative of the Babcock & Wilcox Co. and the Babcock & Wilcox Tube Co., with headquarters at 85 Liberty street, New York.

□ □ □

Lee J. Workum, of the L. J. Workum Co., Portsmouth, O., has been re-elected president of the Cincinnati chapter of the Institute of Scrap Iron and Steel Inc. Other officers elected were: Vice president, William J. Wolf, Wolf & Co., Hamilton, O.; secretary-treasurer, Henry Israel, the Israel Bros. Co., Dayton.

Frederick G. Hughes

Who, as noted in STEEL for Jan. 16, now is general manager of the New Departure Mfg. Co., Bristol, Conn.

□ □ □

William P. Witherow, president, Witherow Steel Corp., Pittsburgh, prior to its absorption by Republic Steel Corp., Youngstown, O., and formerly a vice president of Republic Steel Corp., has been elected a director of the Keystone Driller Co., Beaver Falls, Pa. Mr. Witherow also is a director in the First National Bank of Pittsburgh and the Peoples-Pittsburgh Trust Co., Pittsburgh.

□ □ □

Darwin S. Luntz, of the Luntz Iron & Steel Co., Canton, O., has been re-elected president of the Cleveland-Detroit chapter of the Institute of Scrap Iron and Steel Inc. Other officers are: First vice president, Myron A. Cohen, M. Cohen & Son Co., Cleveland; treasurer, Abner Cohen, M. Cohen & Son Co.; second vice president, Harry Goldman, Riverside Metal Co., Detroit; secretary, Joseph Vassick, Max Friedman & Co., Cleveland.

□ □ □

Prafulla Mukerji, metallurgical engineer, Carnegie Steel Co., Pittsburgh, who recently returned from a six months' leave in Russia, assisted the technical director of Magnitostroy, the new Russian steel mill which is expected to operate in March. Mr. Mukerji recently made the statement that the Russian steel industry can not compete with the American steel industry for at least 25 years inasmuch as it will require probably a quarter of a century to meet demands of its own country.

□ □ □

C. B. Templeton, formerly assistant to the president of the Ludlum Steel Co., Watervliet, N. Y., is now assistant to the vice president in charge of sales. In addition to other duties, Mr. Templeton will have charge of all advertising activity which, since the Ludlum company resumed the marketing of its nevastain and nitralloy steels, formerly handled by the Associated Alloy Steel Co., Cleveland, will include the company's complete line. Mr. Templeton has been with the Ludlum company since his graduation from Yale in 1920.

□ □ □

William J. Meinel, vice president and general manager of the Heintz Mfg. Co., Philadelphia, maker of automobile bodies, radiators and stampings, was elected president at the annual meeting Jan. 23. Mr. Meinel succeeds Franklin W. Thacher, now chairman of the board. For many years Mr. Meinel has been connected with the automotive body and accessory manufacturing trade and was formerly vice president in charge of operations at the Edward G. Budd Mfg. Co., Philadelphia. He became associated with the Heintz company in June, 1932.

□ □ □

Frank H. Gale, manager of conventions and exhibits of the General Electric Co., Schenectady, N. Y., has been retired at his request after 43 years of service with the company. L. W. Shugg has been appointed division manager of the publicity department, to succeed Mr. Gale in charge of that work.

Mr. Gale will continue as secretary-treasurer of the National Electric Light association exhibitors' committee, and will also have general charge of arrangements for the General Electric Co.'s participation in the Century of Progress exposition, Chicago, until it is opened in June.

Obituaries » » »

ALFRED J. PORTER SR., superintendent of Heppenstall Co., Bridgeport, Conn., died Jan. 17. While a young man, Mr. Porter started his career at the plant of the former Bement & Niles Co., Philadelphia. Later he became manager of the machine division of Tindle, Morris & Co., Eddystone, Pa. In 1906 he became associated in a managerial capacity with the Bridgeport Forge Co., Bridgeport, Conn., becoming superintendent when the company was purchased by Heppenstall Co. of Pittsburgh.

□ □ □

Ernest Ryder, president of Patriarche & Bell Inc., steel jobbers, New York, died Jan. 23.

□ □ □

Frank A. Austin, 75, president and treasurer of the F. A. Austin Pattern Co., Syracuse, N. Y., died recently.

□ □ □

Clarence L. Altemus, 54, at one time metallurgist with the former Cambria Steel Co., Johnstown, Pa., died at Montclair, N. J., Jan. 23.

□ □ □

Dennis J. Heaphy, 67, member of the sheet metal manufacturing firm of Dennis J. Heaphy & Son, Syracuse, N. Y., died Jan. 3.

□ □ □

William H. Harris, 80, noted as an inventor of automotive parts and machine attachments, died recently at Indianapolis.

□ □ □

Elmer Ellsworth Wellman, treasurer of Wellman Bros., Jamestown, N. Y., metal manufacturers, died Jan. 25.

□ □ □

Charles F. Avery, for many years a steel broker in New York city and for the past two years residing at Penn Yan, N. Y., died at Syracuse, N. Y., Jan. 16.

□ □ □

Basil Magor, 62, founder of the Magor Car Corp., Athenia, N. J., died at New York recently. A brother, Robert J. Magor, of Montreal, Que., is president of the corporation.

□ □ □

Daniel Duffin Sr., 88, founder of the present Duffin Iron Co., Chicago, structural steel fabricator, died Jan. 17. A native of Ireland, he went to Chicago at an early age and formed the original Daniel Duffin Iron Co. in 1876, as a manufacturer of ornamental iron. This company continued at several locations until 1914, when Mr. Duffin retired and the present Duffin Iron Co. was incorporated.

□ □ □

William W. Chaffe, 68, president of the Gowanda Foundry Co., Gowanda, N. Y., until his retirement several years ago, died Jan. 14 in his home in that Buffalo suburb. His grandfather, Amassa L. Chaffe, founded the company in 1830.

□ □ □

William A. Garrigues, 79, until his retirement two years ago president of the Levering & Garrigues Co., steel fabricator, New York, died Jan. 19 at Thomasville, Ga. He was a former president of the Iron League Erectors' association.

□ □ □

Frank Miller, 86, a pioneer iron worker of the Pittsburgh district, died at Cecil, Pa., Jan. 19. He was identified with Riter & Conley Co., Pittsburgh, for over 50 years and helped with the building of the first steel tanks in the Bradford, Pa., crude oil district.

□ □ □

Herman Henning, 70, pioneer boiler manufacturer of Milwaukee, died Jan. 18 at Hayward, Wis., where he lived since his retirement in 1931. He was born in Milwaukee and entered the boiler industry in 1881. He was one of the founders of the Cream City Boiler Co. and its vice president until his retirement.

□ □ □

James C. Cross, assistant general traffic manager of the Pittsburgh & West Virginia railroad, died at Pittsburgh Jan. 20. He was 49 and had been prominent in Pittsburgh traffic and transportation associations, at one time being traffic manager of the Crucible Steel Co. of America, New York.

□ □ □

G. H. Buchanan, 44, chief technologist of the American Cyanamid Co., New York, died in that city Jan. 21. Prior to going with the company in 1917 he was associated with the New England Coal & Coke Co., Everett, Mass., the New Jersey Zinc Co., Palmerton, Pa., and the Massachusetts Institute of Technology, Boston.

□ □ □

William Franklin Edwards, 76, former president of the University of Washington, at one time director of research for the Guggenheim Foundation and director of the combined research laboratories of four automobile manufacturers in Detroit, died at Engelwood, N. J., Jan. 12. He contributed to the development of alloy steels and was an authority on the physics and chemistry of metallurgical processes.

□ □ □

Clarence E. Whitney, 63, president, Whitney Mfg. Co., Hartford, Conn., died Jan. 22. He was the son of Amos Whitney, one of the founders of Pratt & Whitney Co. He was a graduate of the Massachusetts Institute of Technology and later studied in Germany. Returning, he was with the Pratt & Whitney Co. for a short period. Mr. Whitney was also secretary-treasurer of the Hanson-Whitney Co., the Hanson Tap & Gage Co. and a director of the S. K. F. Ball Bearing Co.

□ □ □

Reimar F. C. Kurtze, formerly associated with the A. O. Smith Corp., Milwaukee, and credited with a large part in the design and development of its automatic pressed steel automobile frame machinery, died at Youngstown, O., Jan. 17. Born in Germany, Mr. Kurtze was an engineering classmate of the late Rudolf Diesel, inventor of the diesel engine. He emigrated to South America, later to Canada, and early in the war went to Milwaukee to join the Smith engineering staff. Several years ago he left for the East.

□ □ □

Arthur L. Garford, 74, formerly a manufacturer of automobiles and trucks at Elyria, O., organizer of the Cleveland Automatic Machine Co. and at one time associated with the Columbia Steel Works, of Elyria, which was eventually absorbed by the Butler, Pa., company of that name, died at Elyria, Jan. 23. Prior to his advent in the automobile business he was a leading manufacturer of bicycles and parts. He was prominently associated with the Theodore Roosevelt-Bull Moose movement in 1912.

□ □ □

Augustine Davis, 80, pioneer oxyacetylene welder, inventor and journalist, whose death Jan. 19 was noted in STEEL for Jan. 23, was honored at the St. Louis exposition in 1904 with a gold medal for his invention of an acetylene lighting generator. In 1906 Mr. Davis returned from Europe with several oxyacetylene torches. With Eugene Bournonville he arranged licenses to manufacture, establishing the Davis-Bournonville Co. at Jersey City, N. J. Later he organized the Davis Acetylene Developing Co., the Davis Oxygen Co. and others. In 1927 the International Acetylene association, of which he was president at one time, awarded him the first James Turner Morehead gold medal.

EDITORIAL

Steel Prices—Are They Too High or Too Low?

"A major hindrance to activity in the steel industry last year was its failure to reduce prices. . . . It would be interesting to see what would happen to American business activity if the leaders in the steel and some other industries would boldly reduce prices to a level which would attract outside buying. It would be particularly interesting to see what would happen to the construction industry, the inactivity in which last year was one of the major causes of the lack of demand for steel."

—*From an article by W. W. Danforth in the Annual Review and Forecast Number of The Annalist, Jan. 20, 1933.*

THE foregoing quotation from the pages of one of the country's leading business and financial journals is typical of opinion that has been expressed with increasing frequency in recent months by a few economists, writers and others who approach the problem of prices from the standpoint of cold statistics. These commentators contend (1) that prices of steel have not been reduced to a degree comparable with prices of many other basic commodities, and (2) that a sharp reduction in steel prices would "attract outside buying."

Perhaps it is significant that complaints of the steel industry's price policy are voiced more loudly by individuals engaged in academic discussion of business problems than by manufacturers and others who actually buy steel. Nevertheless the idea that steel prices are too high is being bandied about so freely that a clear statement of the facts seems to be in order.

The critics base their case upon a comparison of the trend of a steel price composite with that of a general commodity price index. Mr. Danforth, quoted above, relies upon several comparisons. He derives his argument from the discovery that one of the several composites of finished steel prices is 17 per cent above the 1913 average, "whereas the average price of farm products, according to the bureau of labor statistics, is 39 per cent below the 1913 average, that of food products 10 per cent below and that of textile products 8 per cent below."

We will assume, without checking them, that these figures are correct, but at the same time we would call attention to a number of factors that cannot possibly be reflected in any composite of iron and steel prices.

The composites compiled by STEEL, *Daily Metal Trade, Iron Age* and other publications and by the bureau of labor statistics are compiled from quoted base prices. Because of the thousands of variables, such as size, gage, shape, tolerance, length, finish, chemical analysis, treatment, etc., which ordinarily call for extras above the base price, the price paid by the consumer usually is higher than the quoted base.

When the demand for steel is brisk, all extras are adhered to religiously; in time of depression or in a "buyers' market," some extras are waived. Also, especially in the case of specialized products, high extras for analysis or finishing may obtain for a few years and then, because of improvements in manufacture, they are lowered or abandoned. For example, full finished automobile sheets in 1929 took drawing extras of 25, 50 and 75 cents; now the method of rolling is such that extras of only 15 and 25 cents are required.

To show how these hidden factors affect the picture of prices, we submit the following comparison of STEEL's composite of iron and steel prices with the average net income per ton of product received by a typical steel company.

Year	STEEL's Composite of Iron and Steel Prices	Net Income Per Ton Received by Typical Steel Company
1927	$36.37	$82.10
1928	35.50	74.20
1929	36.48	67.15
1930	33.52	63.30
1931	31.15	61.95
1932	29.46	59.05
Decline, per cent	19	28

This gives a hint of how the prices actually paid by consumers have declined more than the base prices.

Mr. Danforth infers that the steel industry would be benefited by further reductions in the price of steel for building construction, yet in the same article, he writes:

"Lumber prices in November . . . averaged 5 per cent above the 1913 level, brick 94 per cent above, cement 33 per cent above, structural steel 6 per cent above, paint and paint materials, 35 per cent above and other building materials 28 per cent above."

"At the end of 1932 building wage rates were not more than 10 per cent below the 1926 level and they were, of course, far above the prewar level."

According to his own testimony, the steel industry has deflated its prices on steel for construction more than any other interest except lumber. We fail to see how a further cut in steel prices would help anyone in the building industry. Either wages and other materials should come down or steel prices should go up.

Another factor ignored by steel's critics is that the steel industry pays freight on five tons of raw materials for every ton of finished steel sold whereas the majority of other industries pay freight on only one or two tons per ton of finished product. On a basis of 100 for 1913, freight on raw materials for steel now is 180.

A careful study of all factors will convince any reasonable person that steel prices have been deflated enough—if not too much.

THE INDUSTRIAL DIAL

Published in the last issue of each month as part of
The Business Trend Section of STEEL

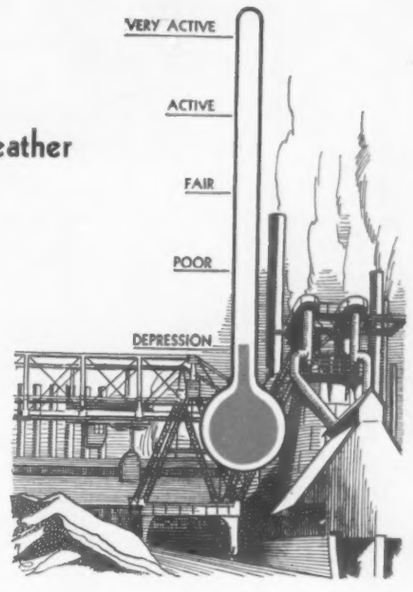
Copyright 1933 by Penton Publishing Co.

WITH the first month of the quarter drawing to a close, it is possible to make a few comparisons of the rise of business in January, 1933, with trends in the corresponding periods of previous years.

In the first two weeks of 1933, revenue freight car loadings gained about 100,000 cars, compared with rises of only 70,000 in 1932 and with 189,000 cars in 1931. Similarly, electric power production gained 81 million kilowatt hours in the first two weeks of this year, compared with 79 million in 1932 and 119 million in 1931. In freight traffic and power production the volume at the beginning of 1933 was considerably below that at the start of 1932.

Estimated automobile output in the first week of January, 1933, was 25,500 compared with 27,800 a year ago. But in the second week (ending Jan. 14, 1933) output leaped to 31,850, as against only 28,800 in the second week of January last year. The present spurt of activity in the motor car field has been the chief single support of the steel industry thus far in the new year. The steelworks operating rate has advanced from 13 per cent of capacity in the final week of December to 18 per cent in the week ending Jan. 21.

Putting these and other barometers together, it appears that the trend in the first few weeks of the present year is somewhat more favorable than the trend in early January a year ago and noticeably less favorable than the start of 1931.



The small gains registered thus far represent a mild seasonal rise in the requirements of the nation for bare essentials. The country still is living on its "fat," and must continue to do so until returning confidence loosens closed pocketbooks. For this reason it is important

The Barometer of Business

Industrial Indicators

	Dec., 1932	Nov., 1932	Dec., 1931
Pig iron output (Daily average, tons)	17,650	20,858	31,625
Machine Tool Index	31.7	29.6	54.3
Unfilled orders (tons)	1,968,140	1,968,301	2,735,353
Ingot output (Daily average, tons)	32,485	39,031	50,047
Dodge Bldg., awards in 37 states (sq. ft.)	6,948,700	12,068,100	17,209,800
Automobile output	*102,000	61,760	123,973
Coal output, tons	31,110,000	30,632,000	30,579,000
Business failures; number	2,469	2,073	2,758
Business failures; liabilities	$64,188,643	$53,621,128	$73,212,950
Cement production, Bbls.	.....	6,462,000	5,998,000
Cotton consumption, bales	440,062	503,722	415,401
Car loadings (weekly average)	497,366	548,802	568,305

*Estimated.

Foreign Trade

Exports	$136,000,000	$139,382,000	$183,577,000
Imports	$97,000,000	$104,466,000	$152,886,000
Gold exports	$13,000	.....	$32,651,000
Gold imports	$101,872,000	.....	$89,509,000

Financial Indicators

	Dec., 1932	Nov., 1932	Dec., 1931
25 Industrial stocks	$89.54	$90.39	$121.99
25 Rail stocks	$20.58	$22.06	$29.29
40 Bonds	$64.05	$65.51	$63.48
Bank clearings (000 omitted)	$20,700,916	$17,828,196	$28,642,223
Commercial paper rate N. Y., per cent	1½	2	4
*Commercial loans (000 omitted)	$10,297,000	$10,413,000	$7,327,000
Federal Reserve ratio, per cent	63.0	62.6	61.9
**Railroad earnings	$34,179,119	$63,839,317	$37,064,372
Stock sales, N. Y. stock exchange	23,208,129	23,037,683	50,190,478
Bond sales, par value	$249,204,450	$159,419,300	$335,205,450

*Leading member banks Federal Reserve System.
**November, October and November, respectively.

Commodity Prices

	Dec., 1932	Nov., 1932	Monthly average Dec., 1931	Monthly average 1913
STEEL's composite average of 14 iron and steel prices	$28.93	$29.12	$30.32	$26.32
Bradstreet's index	$6.89	$6.97	$7.73	$9.21
Wheat, cash (bushel)	63c	63c	74c	92c
Corn, cash (bushel)	41c	43c	52c	51c
Petroleum, crude (Bbl.)	67c	90c	75c	$2.50

	Per Cent
December, 1932	31.7
November, 1932	29.6
December, 1931	54.3

that the government make up its mind promptly as to what form of controlled inflation shall be adopted in order to get the country off its economic dead center.

Developments at Washington during the past fortnight are rather encouraging in spite of the several foolish episodes in the house and senate. The movement to clarify the war debt situation among the nations that did not default on their Dec. 15 payments is important and well timed. The sponsorship behind the bankruptcy reform bill seems to assure its passage. The overwhelming defeat of the Wheeler silver proposal is gratifying to those who dread congressional tinkering with our monetary system.

Where Business Stands

Monthly Average, 1931 = 100

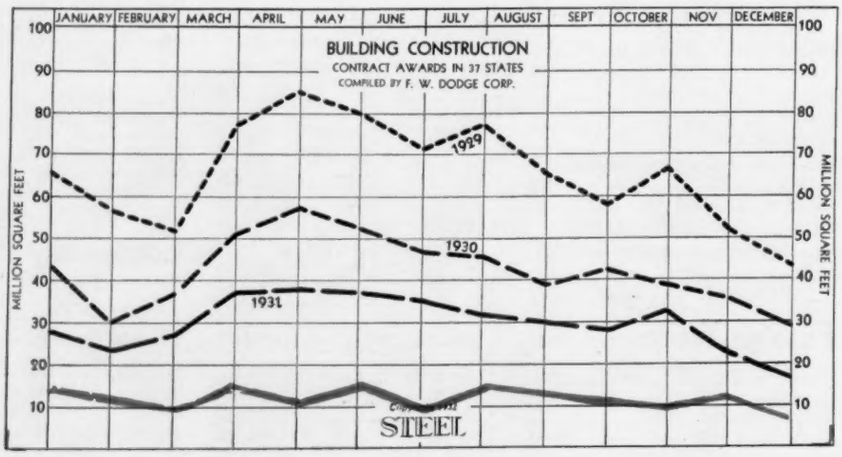
	Dec., 1932	Nov., 1932	Dec., 1931
Steel Ingot Output	40.6	48.7	62.5
Pig Iron Output	35.3	41.7	63.2
Freight Movement	69.5	76.6	79.4
Building Construction	22.8	39.9	56.4
Automobile Output	49.5	29.7	60.2
Wholesale Prices	78.6	79.6	88.2

Machine Tool Buying Continues Slight Expansion in December

The December index of machine tool orders reflects a continuance of recent slight improvement, according to the report issued by the National Machine Tool Builders association. The three-month moving average for the last month of 1932 stood at 31.7 compared with 29.6 in November and 54.3 in December, 1931. The shipment index was up slightly to 32.3 against 28.9 for the preceding month and 57.2 for December, 1931. The index of unfilled orders increased to 45.4 from 42.2 in November and compares with 104.1 for December a year ago.

Reports Show Building Construction At Low Ebb in December

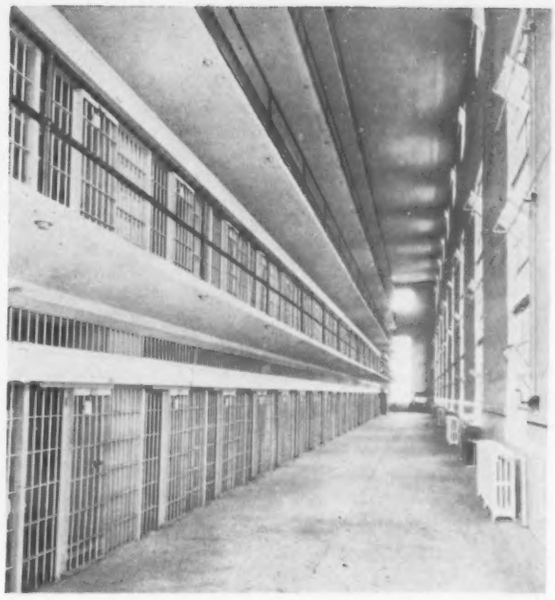
Building activity in 37 eastern states, as measured in new floor space, declined over 5,000,000 square feet in December. Total awards for the last month of 1932 involved only 6,948,700 square feet as compared with 12,068,100 square feet in November and 17,209,800 in December, 1931. According to reports of F. W. Dodge Corp., total construction for the twelve months of 1932 involved 76,129 projects for a total of 155,575,400 square feet of floor space with a valuation aggregating $1,351,158,700.



	Square Feet
Dec., 1932	6,948,700
Nov., 1932	12,068,100
Dec., 1931	17,209,800

HEAT TREATED ALLOY STEEL MAKES JAILS ESCAPE PROOF

By J. B. NEALEY



Cells installed at the state penitentiary, Lansing, Kans. Five tiers with 120 cells are shown. The same number is provided on the opposite side of the cell block

A LARGE proportion of the criminal class, to some degree, is versed in mechanics, so much so in fact that builders of prisons are hard put to make them escape proof. Modern jails are built of steel bars and plates and consist of rows of sleeping compartments opening into exercise corridors or day rooms, and are arranged in tiers, one above the other. To afford light and ventilation of sleeping compartments and corridors grating construction is necessary and this is of vertical round and horizontal flat bars, interlocked with each other at intersections to prevent displacement by prisoners. Compartments for felon prisoners are made of steel of special analysis, heat treated so that it will withstand repeated blows and strains and at the same time resist cutting tools and even heat.

In short, in modern twentieth century jail and prison construction, the prime essentials are: Security against escape of prisoners; safety of the jailer from attack from within or without; scientific sanitation and ventilation, with provision for the proper separation, classification, comfort and healthful exercise of prisoners; and proper mechanical means for safe and convenient handling of prisoners.

All these factors are found in prisons equipped by the Southern Prison Co., San Antonio, Tex., which has been building and equip-

This illustration shows a typical women's prison dormitory and day room

ping these detention structures—federal, state, county and municipal—for almost half a century and all over the United States.

This jail builder has gone further and added many refinements and improvements, one of which is a remote control system better known as a "fully selective-type sliding door operating and locking system." The means for operating and locking long lines of doors are located in a central control cabinet at the end of a line of cells, or at some more convenient point where the jailer can stand, in a protected position if desired, and open and close doors for movement of any or all prisoners in that block, and without being exposed to attack from them. Indexes in the control cabinets show which doors are open and which are closed.

The plate steel used in this plant, for the most part, is of laminated construction, or what is commonly referred to as "five-ply," three laminations being of low-carbon steel with the two inside laminations of special alloy steel. These five laminations are hot rolled into one smooth plate at the mill. Later the plates are carefully heat treated by a process involving much skill and a surprising lot of expensive and special equipment.

Bars of Alloy Steel

The bars used in the construction of the best quality of hardened steel grated work in most cases differ from the hardened steel plate construction in that these bars are composed entirely of special alloy steel of the same analysis throughout. Grated construction being more subject to attack than plate construction, because of the greater ease with which it may be attacked, the company several years ago developed this type as an improvement over the old laminated type of bar. Practically all bars used in the various types and weights of grated work must be rolled to special shapes.

An experimental department is maintained which is constantly working on new ideas, new methods of treating steels, new steel analyses and improvements of all kinds affecting the company's products.

The plant of the Southern Prison company consists of six buildings arranged in two rows with spur railroad tracks down the center for ease in handling raw materials and finished products. There is a room for a material yard, 75 feet wide, and this is equipped with loading and unloading cranes. The material is stocked on skids which are moved in and out of the buildings with high-lift trucks. The entire layout of the plant is on the departmental basis as follows: 1. Cutting; 2. Punching; 3. Shaping; 4. Heat Treating; and 5, Assembling, painting, knockdown and shipping. Straight-line progression, from raw material to shipping, with the minimum of handling, is followed throughout. The plant occupies an entire city block.

As indicated, the first departments are equipped with bar cutters, plate shears, punch presses, etc., for the initial operation. There is also a machine shop, completely equipped for the making of dies, tools, jigs and special machinery used elsewhere in the plant.

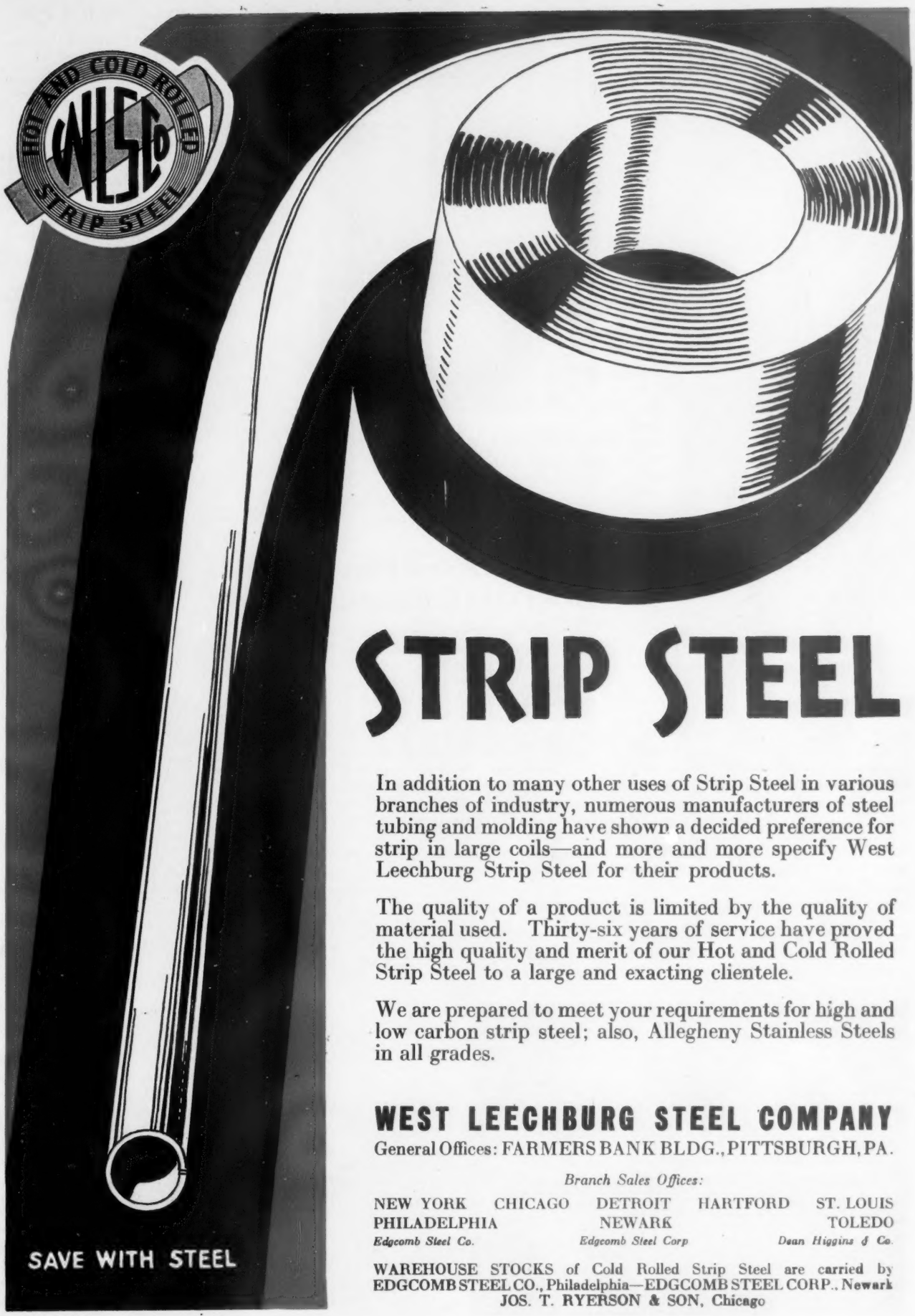
Furnaces Are Gas Fired

Probably the most interesting division of this plant is the heat treating room. Here gas fuel is used throughout. The first unit consists of a large special plate furnace, quenching tank, and straightening rolls. The furnace, shown in an accompanying illustration, is of brick construction, encased in cast-iron plates and is sufficiently large to treat rapidly and accurately the largest sizes of jail plates. A counterweighted door is provided at each end and in front of each door is a steel roller table 12 feet long, on which the plates are handled into and out of the furnace. A hoist suspended from an overhead runway is used in handling the plates.

Heat for this furnace is supplied through gas burners, 8 located in a single row on each side, or 16 in all. The plates are charged into the furnace and when up to heat are pulled out onto the table at the discharge end. Along side of this table is a steel quench tank, which is only 2 feet wide but is 12 feet long and 12 feet deep. Within the period of a few seconds the plates are lifted by hoist and lowered into this tank edgewise for quenching after which they are replaced on the table and run through the straightening rolls directly from the table. A portable quench tank, which can be placed along side the charging table, is used whenever this furnace is employed in hardening bars.

This furnace is automatic as to

(Upper left)—Discharge end of the gas-fired furnace for heat treating jail steel plates. The heated plates are quenched in a narrow but deep floor-level tank at the right of the roller table. (Lower right)—Prison equipment under construction. Fabricated work is assembled complete, then painted and knocked down for shipment



STRIP STEEL

In addition to many other uses of Strip Steel in various branches of industry, numerous manufacturers of steel tubing and molding have shown a decided preference for strip in large coils—and more and more specify West Leechburg Strip Steel for their products.

The quality of a product is limited by the quality of material used. Thirty-six years of service have proved the high quality and merit of our Hot and Cold Rolled Strip Steel to a large and exacting clientele.

We are prepared to meet your requirements for high and low carbon strip steel; also, Allegheny Stainless Steels in all grades.

WEST LEECHBURG STEEL COMPANY

General Offices: FARMERS BANK BLDG., PITTSBURGH, PA.

Branch Sales Offices:

NEW YORK	CHICAGO	DETROIT	HARTFORD	ST. LOUIS
PHILADELPHIA		NEWARK		TOLEDO
Edgcomb Steel Co.		*Edgcomb Steel Corp*		*Dean Higgins & Co.*

WAREHOUSE STOCKS of Cold Rolled Strip Steel are carried by EDGCOMB STEEL CO., Philadelphia—EDGCOMB STEEL CORP., Newark
JOS. T. RYERSON & SON, Chicago

temperature control, thermocouples being employed which are connected with motor-operated valves. When the temperature rises above the setting on the pyrometer, the circuit is completed and the motor closes the valve, which is in the gas supply line, thus cutting off the gas from the burner. Conversely, when the temperature has dropped below the setting, the motor reopens the valve, and the burners are on full again.

Bar Furnace Longer

Another furnace, which is used exclusively for bars, is of the same construction as the one just described, but is 18 feet long, 4 feet wide and 4 feet high. This unit is heated with 18 gas burners to a side, or 36 in all. The bars are pushed into the furnace, and when up to heat are pulled out at the other end and dropped into a long steel quench tank. This unit is also equipped with an automatic temperature control of the diaphragm-actuated valve type. Both are provided with recording pyrometers which keep perpetual charts of any and all heat fluctuations.

For small parts a double-deck furnace mounted on legs is employed. This furnace is 3 feet square and 4 feet high, and a single gas burner, firing into the lower chamber, supplies sufficient heat for both. The work is preheated in the upper chamber, heat from the lower rising through the hearth, and is then brought up to temperature in the lower chamber. The combustion mixture is supplied through a motor-operated blower which has a gas-air proportioning valve at the inlet. This valve can be set so as to provide any ratio of gas and air desired, reducing, oxidizing or neutral. A reducing atmosphere is required in all of these furnaces and all of the burners are equally flexible as to gas-air ratios.

The fabricated work is assembled complete on the floor, painted, knocked down and shipped to the prison in which it is to be installed and re-

A typical cell in the county jail at Ventura, Calif.

erected by a field crew furnished by the company for that purpose.

Program for Annual Meeting Of A.I.M.M.E. Announced

Preliminary announcement has been made of the program for the annual meeting of the American Institute of Mining and Metallurgical Engineers at the Engineering Societies building, 29 West Thirty-ninth street, New York, Feb. 20-23. Every division and technical committee of the institute is well represented, three sessions of interest to representatives of the iron and steel industry being the meetings of the iron and steel division, committee on blast furnaces and raw materials, and the gases in metals roundtable. Papers to be presented before these groups include:

Iron and Steel Division

"Precipitation Hardening of Copper Steels," by Cyril S. Smith and Earl W. Palmer.

"Special Copper Steels," by D. H. Ruhnke and R. L. Dowdell.

"An Improved Nickel-Chromium Hardened Chilled Cast Iron," by J. S. Vanick.

"A Study of the Homogeneity Limits of Wustite (FeO) by X-Ray Methods," by Eric R. Jette and Frank Foote.

"An X-Ray Study of Iron-Silicon Alloys Containing 0 to 15 Per Cent Silicon," by Eric R. Jette and E. S. Greiner.

"Studies Upon the Widmanstatten Structure, IV—The Iron-Carbon Alloys," by R. F. Mehl, C. S. Barrett and D. W. Smith.

"A New Thermocouple for the Determination of High Temperatures, Including Liquid Steel Temperatures," by G. R. Fitterer.

"Oxide Analysis by Iodine Extraction in Steelmaking Problems," by John J. Egan. Walter Crafts and A. B. Kinzel.

"Hot-Hardness of High-Speed Steels and Related Alloys," by Dr. Oscar E. Harder and H. A. Grove.

"Properties of Low-Carbon Medium-Chromium Steels of the Air-Hardening Type," by E. C. Wright and P. F. Mumma.

"Steelmaking Processes," by George B. Waterhouse (Howe lecture).

Committee on Blast Furnaces and Raw Materials

"Evaluation of Coal for Coke Applied to the Production of Pig Iron," by Roy P. Hudson. Discussion by Charles C. Russell, Howard P. Zeller and Ralph H. Sweetser.

"The Effect of Variations in Coke Ash on Pig Iron Analysis," by H. W. Johnson.

"Gravity Concentration Tests on Michigan Iron Formations," by Frank T. Tolonen.

"Composition, Physical Properties and Deoxidation of Iron Oxide Sinters," by T. L. Joseph, E. P. Barrett and C. E. Wood.

Gases in Metals Roundtable

"A General Analysis of the Gas-Metal Problem and Its Practical Importance," by Dr. John Johnston.

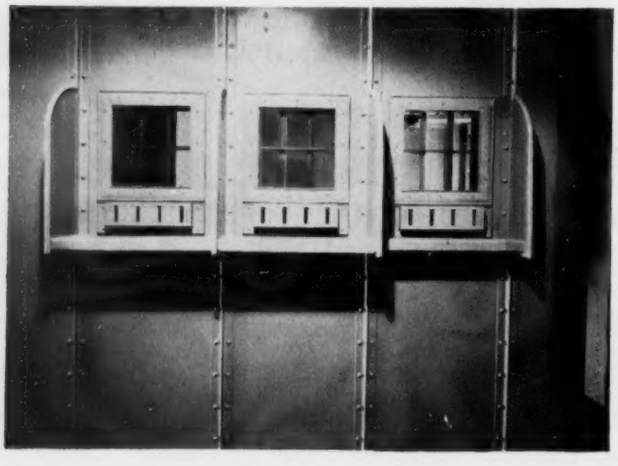
"An Evaluation of Analytical Methods for Determining Gases in Metals," by P. H. Brace.

"Gas-Metal Problems of the Brass Industry," by J. L. Christie.

"The Gas-Metal Problems of the Nonferrous Foundryman," by E. R. Darby.

"The Interpretation of Gas-Metal Reactions in the Light of Phase Equilibria," by Dr. C. H. Mathewson.

"The Gas-Metal Problems of the Steel Industry," speaker to be announced.



◆

VISITORS' panel in the Ventura, Calif., county jail equipped with talking apertures and windows of bullet-proof glass

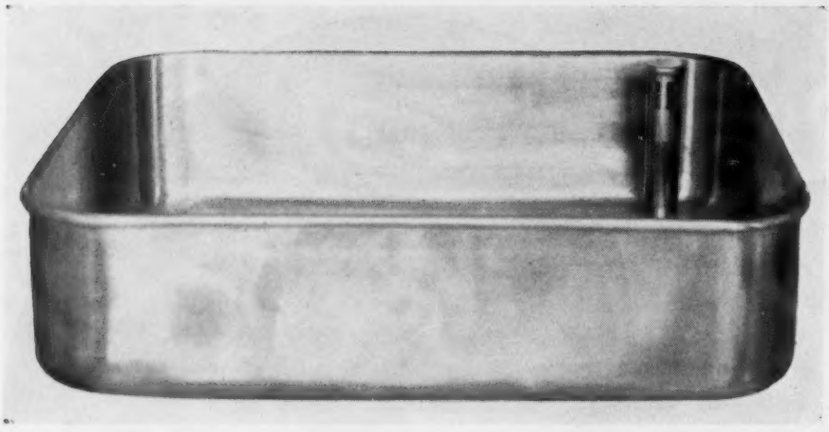
◆

French Scientist To Address Institute of Metals

Albert Portevin, president of the civil engineers' society of France, has accepted the invitation to present the next annual May lecture before the Institute of Metals, London. He will speak on, "Quenching and Tempering Phenomena in Alloys," the lecture to be delivered Wednesday, May 10, at the Institution of Mechanical Engineers, Storey's Gate, Westminster, London, at 8 p. m.

G. Shaw Scott, secretary of the Institute of Metals, announces that the annual general meeting will be held in London, March 8-9, celebrating the twenty-fifth anniversary of the founding of the institute.

MANUFACTURERS
SPECIFICATION
WIRE
Bolt Wire
Chain Wire
Coat and Hat Hook Wire
Cold Heading Wire
Hinge Wire
Machine Screw Wire
Pail Bail Wire
Rim Wire
Rivet Wire
Screw Stock Wire
Spoke Wire
Wood Screw Wire, Etc.
THE YOUNGSTOWN
SHEET & TUBE CO.
General Offices
YOUNGSTOWN, OHIO
YOUNGSTOWN



One forming operation followed by annealing serves to complete this steel sink from 18-8 sheet stock

Corrosion-Resisting Steel Sinks Formed in One Operation

SEAMLESS corrosion-resisting steel sinks, non-welded and fabricated of one 18-8 sheet in one major operation on special designed presses, are being produced in several sizes by the Joseph Heinrichs Corp., Long Island City, N. Y. With the exception of finishing and punching of one hole for the drain, fabrication is confined to one forming operation, exclusive of annealing. Standardization of dies or the limitation of sizes allows high production where specifications are heavy enough for any given size.

Sinks for hospital, steam-table or kitchen use are usually of 18-gage 18-8 sheets, although 16 and 14-gage are utilized to some extent. Bulk of sizes are 18 by 24 inches, 8 inches deep, and 16 by 20 inches, 6 inches deep. Edges are generally squared, but sometimes crimped as shown in the accompanying illustration; when squared, a projecting flange is formed around the entire top of the bowl. This is done at the time the entire bowl is formed without an extra operation. The flange allows easy drainage from the drain boards. The drain pipe hole is punched after the forming and at any point desired in the bottom of the shell.

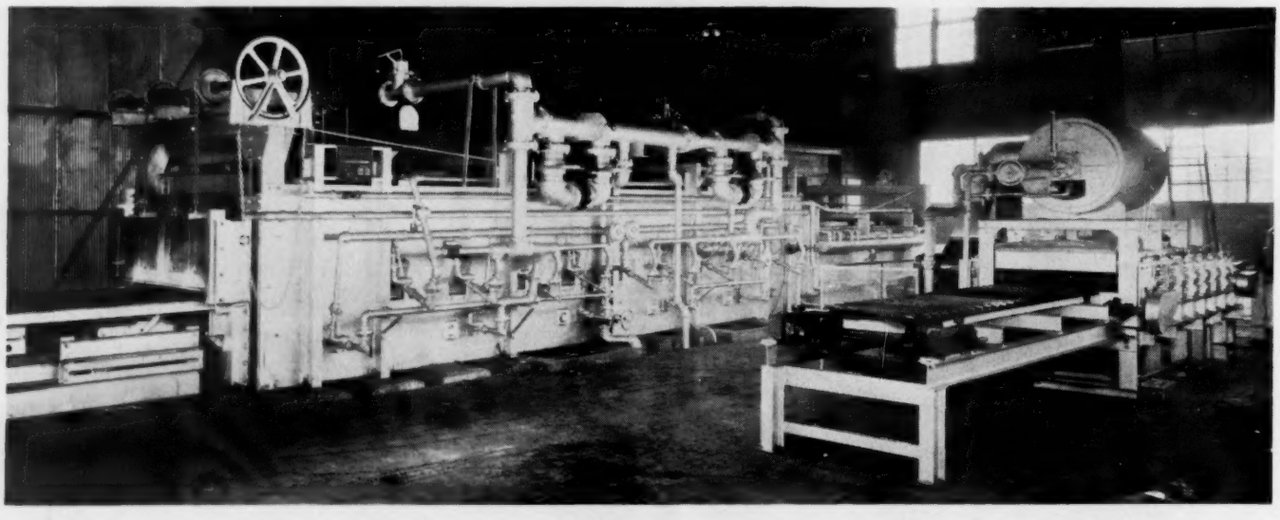
Dies provide for rounded corners and seamless construction throughout, there being no square corners or crevices in the finished product. Of a continuous sheet throughout, it is water tight with danger of pin holes eliminated.

The unit is heat treated in a gas furnace, brought to a 1950 degree Fahr. heat, kept in the furnace 2 or 3 minutes and then rapidly cooled, water quenched when the heavier gages of sheets are used. The lighter sheets are generally air cooled. The unit is then finished as specified, there being no grinding required in the fabrication of this seamless unit. The weight of the average bowl unit is 15 pounds. It is possible to weld additional parts or sections to the bowl, including shelving or hood, although such additions are not on a standard unit.

Nickel-Base Alloy Suitable For Dairy Equipment

A new nickel-base chromium alloy has been developed by the International Nickel Co. Inc., New York, for the dairy industry and will be known as Inconel, according to a recent announcement. The alloy is produced by adding to nickel sufficient chromium to provide corrosion resistance without, at the same time, having any harmful effects on the malleability or workability of the metal. Chromium content ranges from 12 to 14 per cent; iron content is about 6 per cent.

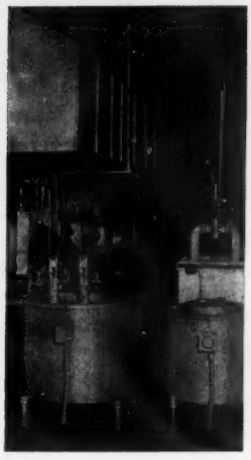
Advantages claimed for the new material by its sponsors include: High resistance to corrosion from all dairy products, refrigerating brines, ammonia and cleaning and sterilizing compounds; nonrusting, nontarnishing and noncontaminating; excellent welding and fabricating properties; satisfactory heat transfer projection; and easily cleaned.



NORMALIZING IS A NEW PRACTICE IN TIN PLATE MANUFACTURE. Here is shown a continuous walking-beam furnace and dryer recently put into operation in the plant of the Washington Tin Plate Co., Washington, Pa. This equipment was built by the Surface Combustion Corp., Toledo, O. The furnace is 40 feet long and has a capacity of 35 tons of black plate per day; the dryer is a separate unit and is equipped with an air heater for supplying sufficient hot air for drying the plate after pickling. Both normalizer and dryer burn natural gas

Making the Most of

METHODS AND MATERIALS



FOLLOWING an extended series of experiments, a Midwest steel foundryman has developed a system for producing steel castings without the use of feeders or sand. The castings are produced under pressure in metal molds. In addition to the saving effected in the amount of metal required to be melted for a given tonnage, the castings are claimed to present a surface appearance superior to those produced in sand and to possess a tensile strength of over 100,000 pounds per square inch. The process is based on a definite relationship between the temperature of the metal and the thickness of metal section in the casting. Through the radical reduction in production cost the manufacturer anticipates a wide and highly profitable market.

$ $ $

A large automobile manufacturer states that on tool fixtures such as multiple heads, grinding spindles, drill press spindles and similar steel parts, some cold heading dies and sliding surfaces where friction develops, the parts will show a saving of from 6 to 20 times after plating. The life of gages, tools, centers and machine parts on the job is being increased many fold.

$ $ $

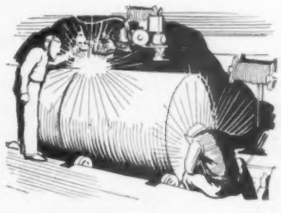
MASS production has enabled manufacturers to obtain a lower unit production cost in grinding operations. One of the outstanding contributions made within the last 18 months is the automatic hopper. This development represents one of the greatest advances in the progressive increase of output per operator since the advent of the centerless grinder itself. By employing these hoppers in conjunction with centerless grinders, manual feeding operations are reduced, fatigue is lessened for the operator, and one man can operate a battery of three or more machines, thus reducing costs 25 to 40 per cent. The operator fills the first hopper basin and all succeeding operations are automatic.

$ $ $

An interesting feature in connection with the spraying of metal coatings is the adaptation of manufactured gas in lieu of the oxyacetylene flame which was first used in the spray gun. An eastern company specializing in metal spray made experiments with manufactured gas about a year ago and the results were satisfactory. At present, about 95 per cent of the work is done with this fuel. Acetylene still is used in about 5 per cent of the work, mainly on outside jobs where gas at suitable pressure is not available.

$ $ $

The nitrogen content of low-carbon metal-arc weld metals may vary from 0.015 to 0.15 per cent, depending upon the degree of protection. Oxygen contents also are presumably high. Other changes in chemical composition occur during weld deposition—the carbon and manganese being considerably lowered, the decrease in the contents of these elements from their values for the original electrodes being again dependent upon the degree of protection of the arc. The large loss of carbon and manganese in the transfer of the molten metal through the arc is indicative of the extremely oxidizing conditions within the arc.



$ $ $

A 14 per cent chromium stainless iron was being considered for parts in a certain piece of apparatus expected to withstand ordinary atmospheric corrosion. No effort was made to determine whether the iron was satisfactory for the purpose intended; it was simply put in a salt spray test and rejected because it did not show perfect resistance. The manufacturer had been using a nonferrous alloy for these parts and finally, to get some adequate answer, prepared samples from the various materials under consideration, including the 14 per cent chromium iron. These were sent to the Gulf coast, just a few hundred feet from the sea, to obtain the worst combination of atmosphere and temperature. It was found that the parts made from this iron neither stained nor corroded. According to the metallurgist relating this incident, it is not possible to set empirical standards for a salt spray test until it has been tied up with individual requirements.

$ $ $

Several cases of trouble in porcelain enameling gray iron castings have been found due to the molder taking improper precautions or time in skimming the dirt and slag from the iron at the ladle before pouring. This type of trouble happens consistently if not checked carefully.

$ $ $

IN CONSIDERING use of the blowpipe for maintenance of bearings, it must be remembered that because of the special heat-treated properties of ball and roller types that application of the welding flame is not recommended. Bronze, babbitt and die-cast bearings, however, can be handled successfully in many cases. Rebabbitting bearings is made easy and quick when the blowpipe is used to melt the metal and heat the caps.

$ $ $

A convenient method has been developed for adding nickel or other alloying materials to ladle cast iron. A stoppered funnel is attached to the cupola directly above the tap hole and a calculated amount of alloy contained in the funnel is released by lifting the stopper through a pulley arrangement. This attachment should be placed about 15 inches above the tap hole so that the impact of the falling shot is sufficient to force the alloy into the stream. The convenience offered makes this a very desirable method as the furnace man is not required to leave his position at the spout. The hottest metal is obtained at this point and a complete assimilation of the alloy is assured.

IMPROVING OPEN-HEARTH FURNACE DESIGN

BY WILLIAM C. BUELL JR.

Part IV—Mechanics of the Roof

(Seventeenth Article of Series)

MANY progressive masons in conjunction with understanding supervision, proceed to install the keys as explained, but instead of three or four keys, only one or two keys are driven lightly, so that when the centers are burned out or removed, the roof falls 3 or 4 inches. This means that there is a small interstice developed between each brick at L_1 and that L_2, the upper arc, is in bearing. When the roof is heated and expands, the movement upward brings each brick into a relatively perfect bearing with those adjacent and thus the stresses are distributed throughout the entire area of the brick and the roof when hot conforms to the designs. Naismith, an authority on open-hearth brickwork, is credited with the statement*:

". . . . Instead of driving three keys in a ring of the roof and usually shattering numerous brick on account of keying too tightly, we are driving only one key in the center of the roof in a furnace 22 feet wide, so that when the wooden center is removed the roof drops about 3 inches. When the furnace is being heated up, the roof rises to its original position without spalling the brick."

In considering the effect heating of the roof has on the length of the arcs L_1 and L_2, the 19.75 foot chord, 60 degree included angle and 18-inch roof brick of the recommended roof are assumed. From Table XXXVI it is found that $L_1 = 19.75 \times 1.0472$ or 20.68 feet, and $L_2 = 19.75 \times 1.2043$ or 23.78 feet.

If 18 x 9 x 3-inch brick were calculated for this roof on a cold basis, each ring would contain:

66 No. 2 Wedge (18 x 9 x 3"-2½")
28 No. 1 Wedge (18 x 9 x 3"-2¾")
1 Split (18 x 9 x 2")

If the roof were laid to this specification, then, when heated, the inner arc L_1 would expand the maximum of 3/16-inch per foot of length and the outer arc, L_2 but 1/16-inch per foot, it remaining much cooler than the inner surface.

According, and assuming the arch to have been keyed so that when cold it maintains its designed characteristics, the length of the arcs under heat will become:

$L_1 = (\frac{3}{16}/12 \times 20.68) + 20.68$ or 21.003 feet

$L_2 = (\frac{1}{16}/12 \times 23.78) + 23.78$ or 23.904 feet

This is a lengthening of 3⅞ inches for L_1 and 1¼ inches for L_2.

Roof Rise Is Increased

If the brick on L_1 do not deform under pressure and the arc at the quoted values is accomplished, the included angle will be increased in effect from 60 to about 70 degrees, and the roof rise increased accordingly.

As it is desirable to hold to the design the calculation may be accomplished by using the differences of the lengths of arcs when hot and cold and specifying brick for the cold arc lengths as found.

The lengths of arcs for the true radii heretofore given are 20.68 feet for L_1 and 23.78 feet for L_2 and these are the lengths desired with the furnace hot. Accordingly, the brick when laid cold should occupy curvilinear distances of:

$L_1 = 20.68 - (\frac{3}{16}/12 \times 20.68)$ or 20.357 feet.

$L_2 = 23.78 - (\frac{1}{16}/12 \times 23.78)$ or 23.596 feet.

The following specification of brick will be required for each ring which will be seen to be different from the list previously given:

63, No. 2 Wedge (18 x 9 x 3"-2½")
30, No. 1 Wedge (18 x 9 x 3"-2¾")
2, Split (18 x 9 x 2")

However, laid in this manner there will be a total space present, which later will be filled by thermal expansion of about 3⅞ inches in L_1 and 1¼ inches in L_2 a total difference of about 2⅝ inches. This will divide into 94 spaces, necessitating for proper results in bricklaying that a scrap of paper about 0.03-inch thick be placed between each brick at the inner surface L_1 only. Then, if the keys are driven snugly the roof will drop slightly when the centers are removed, but will regain its designed radius when heated.

Careful craftsmanship in the construction of the roof will be amply repaid. Figs. 32 and 33 diagramatically present the various conditions discussed. The roof of Fig. 32 is taken as an arch in which the brick are well fitted to the designed radius, a, (left) and three or four keys, K, fully driven. The arch is by this method lifted off the center and forced to assume a new and shorter radius, b, (center). This has the effect of increasing the ratio of L_2 to L_1, with the result that the line of stress moves from the entire cross section to the vicinity of L_1.

The roof is now heated and thermal expansion causes another lengthening

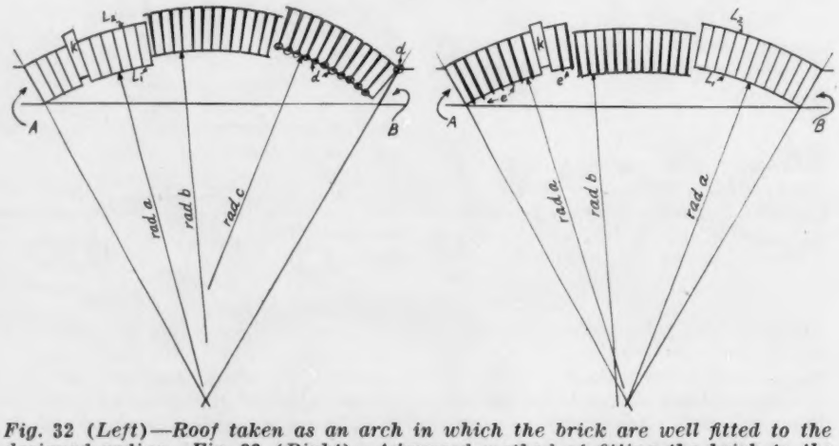


Fig. 32 (Left)—Roof taken as an arch in which the brick are well fitted to the designed radius. Fig. 33 (Right)—Advanced method of fitting the brick to the radius

*"Furnace Bindings," by A. R. Tegge; *Iron and Steel Engineer*, May, 1929, page 190.

of L_1, and the development of a third and still smaller radius, c, (right). As the brick are heated and reach softening temperatures, deformation takes place at the encircled points, d. The roof then drops to again approach the original radius, a, but does so irregularly due to temperature difference. The roof now may be damaged badly and unstable and its normal life curtailed. Examination at the skew B, will disclose that several brick are placed in tension by the upward movement of the arch. One or more of these brick will fracture thus severely weakening the arch ring in addition.

In the better method, Fig. 33, the brick are fitted to the correct radius, a, (left) each brick having a thin separator at e. One or two keys, K, are snugly driven and the center removed. The roof ring now falls a few inches taking radius, b, (center) which is greater than the original radius.

While cold and until heated the line of stress is along L_2. The roof is now heated, and thermal expansion causes it to raise to approximately its original radius, a, (right) at which position the lines of stress are by a more complete bearing and proper radius distributed throughout the entire cross section.

Involves Two Members

Skews which form the abutments that restrain the roof, ordinarily consist of two elements (exception: the water-cooled skew at the back wall of furnace G), the skewback brick and the skewback, often termed skew channel.

The skewback brick, which is usually of silica, acts first to insulate the skewback from the effects of excessive temperature and, second, to form a properly angled face to receive the roof ends and to assure an equitable distribution of the roof stresses into the skewback. Both of these functions are of similar importance. The maintenance of the skewback brick in its original form is of prime importance to normal roof life inasmuch as distortion through heating effect or crushing as a result of the over stressing of the material is fraught with the possibilities of early roof failure.

The skewback of either cast or rolled steel always supports the skewback brick against the horizontal thrust of the roof. It should be designed to support the vertical component of the roof thrust as well as the weight of the roof, inasmuch as no dependence can be placed on the front or back wall to receive these loadings uniformly because of the results of expansion and contraction.

The skewback, which acts as a simple beam, transmits the stresses originating in the roof to the buckstays and the binding system. It follows that its proper design of sufficient strength to prevent excessive deflection, is also of prime importance if the maximum furnace campaign is to be secured.

The proper location of the skewback brick with reference to the interior surface of the front and back walls is considered as an important factor in its design. A most vital point in skewback brick design is the proper and sufficient protection of the toe of the brick.

Reference to Fig. 21 will show the following conditions, in this respect, in existing furnaces. The toe of the skewback brick at the front walls of furnaces A, B, C, D, F, H, K, L, N and O are in the same vertical plane as the inner face of the front walls and therefore are washed directly by the furnace gases and flame. Although for about one-half the length of the front wall, over the universally used water-cooled doors and frames, they are cooled to some extent by the proximity of the water-cooled elements, those portions over the jams receive the full effect of the furnace gases and may be expected to give trouble. Excepting the cases of furnaces A, F, N and O, the exposure is caused by the thinning of the front walls to 13½ inches thickness and the necessity of installing a skewback brick of sufficient lateral area.

With the exception of the four furnaces mentioned, a considerable improvement in skewback and contingency roof life might be expected if the upper courses of the front wall were corbeled out to 18 inches in accordance with the design of Fig. 20. The front wall skewback brick in furnaces E, G, I, J and M are protected to some extent, indicating much more thoughtful design.

The skewback brick of the back walls are, in general, better located.

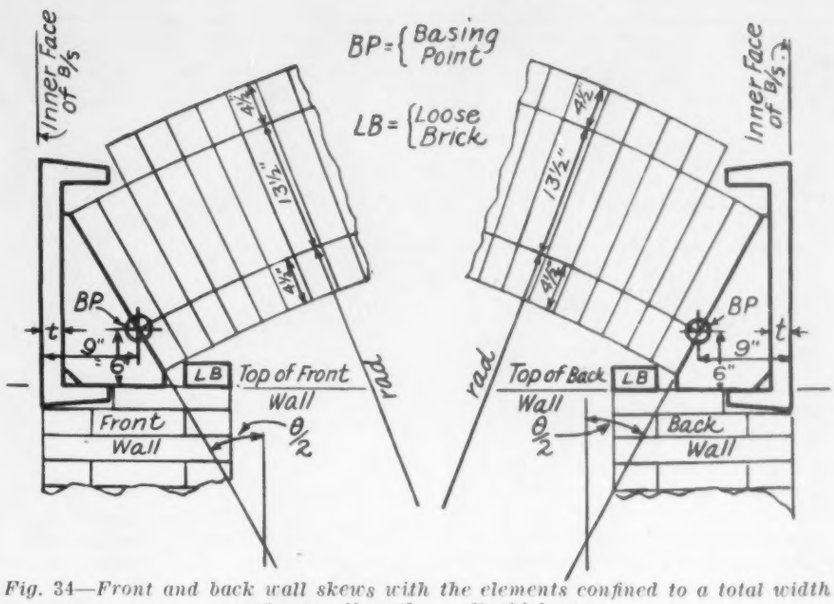


Fig. 34—Front and back wall skews with the elements confined to a total width not exceeding the wall thickness

only seven furnaces, A, B, C, D, F, N and O having the toe of the skewback brick directly exposed, and of these, all but furnace D have roofs with a horizontal chord in which the skew systems at both front and back are symmetrical.

All designers and operators no doubt will recognize the desirability of protecting the toe of the skewback brick and the following discussion will develop a method of design in which this may be accomplished satisfactorily providing the top surfaces of the front and rear walls have a width of 18 inches which may be accomplished easily by the use of the wall designs of Figs. 19 and 20.

How Toe Is Protected

In designing a skew system the designer is faced with the combined problem of the development of a skewback of sufficient thickness to develop the strength required and of a skewback brick that will present a face having a length equal to that of the roof brick for its reception and at the same time locating the skewback brick toe as far in from the surfaces of the inner furnace walls as may be possible, bearing in mind the necessity of the lateral development of the skewback brick to such dimensions that the resulting product will be sturdy and rugged. Since the skewback is located within the buckstays it follows that both the skew elements must be confined to a total width not to exceed the wall thicknesses and, if proper protection to the skewback brick is to be secured, the width must not exceed 12 or 13 inches in the case of 18-inch walls. Front and back wall skews of a furnace assumed to have these at equal elevations are shown in Fig. 34. They might apply to furnaces A, B, C, D, F, N or O.

(To be continued)

SCANNING THE FIELD OF TECHNOLOGY

A Digest of Important Developments Pertaining to the Production, Processing, Application and Performance of Steel

Alloy Steels in the Mines

By W. J. Priestley, vice president, Electro Metallurgical Co., presented at meeting of American Mining Congress in Washington, Dec. 15, 13 pp.

Construction of modern mining equipment requires a wide field of diversified technical knowledge. It calls for a broad conception of mechanical, chemical and metallurgical principles which are so closely related that it is sometimes difficult to differentiate between them. The construction and operating engineer is interested in materials that will save weight, increase strength and at the same time reduce installation and operating costs.

Alloy steels already have found useful places in the mining industry. Up to the present time, manganese and chromium are the two elements added to steel to provide resistance to wear. Chromium, vanadium, nickel and molybdenum are added to obtain increased strength, while high percentages of chromium make it possible to combat serious problems in corrosion and oxidation. Various types of mining machinery and equipment are described, in which alloy steels can be used to advantage.

—STEEL, 1-30-33

Machinery vs. Business Cycle

By W. H. Rastall, department of commerce, in Mechanical Engineering, January, p. 10, 3 pp., 3 tables, 1 chart.

The American machinery industry probably has suffered more than any other industry in the depression of the past three years. Data are presented to substantiate this fact, from which it is concluded that American industry in general is suffering because it has no adequate equipment policy. Machinery buying as reflected in the experience of the machine tool group in 1919-20 and in 1928-29 represents buying anarchy. It indicates that there has been no continuity in the policy followed by corporations that have occasion to buy such equipment, and, conversely, that as soon as confidence weakens there is a paralysis of buying which necessarily must be taken into account by machinery manufacturers. For the first time it appears that adequate data are available covering two crises which will enable machine tool builders and other machinery manufacturers to understand their effects on the industry as a whole, and to adjust sales policies, price policies and management policies generally in such a way as to insure protection hereafter.

—STEEL, 1-30-33

Welding High Manganese

Oxy-Acetylene Tips, January, p. 11, 2 pp., 1 ill.

Summary of the proper procedure control for welding manganese steel castings by the oxyacetylene process.

—STEEL, 1-30-33

New Type of Brinell Ball

By Haakon Styri, in Metals and Alloys, January, p. 273, 2 pp., 2 ills., 2 graphs, 1 table.

Comparison of relationships between brinell numbers obtained with a recently devoleped sintered tungsten carbide brinell ball and brinell numbers obtained with the Hultgren ball, with the Rockwell diamond cone numbers and the Vickers pyramid numbers, using the same test material for each.

—STEEL, 1-30-33

How Big Is a Bridge?

Wire Engineering, January, p. 39, 8 pp., 3 graphs, 1 ill., 1 table.

Ten largest suspension bridges in this country are compared as regards length of main span, length of cable between anchorages, number and diameter of cables, total strength of all cables and strength per cable. Golden Gate bridge leads in all these characteristics except total strength of cables, where it surrenders first place to the George Washington bridge. Manufacture of bridge cable wire is outlined.

—STEEL, 1-30-33

Chromium-Nickel-Iron Alloys

By Vsevolod N. Krivobok, with the assistance of E. L. Beardman, H. J. Hand, T. O. A. Holm, A. Reggiori and R. S. Rose, in Transactions of the American Society for Steel Treating, January, p. 22, 37 pp., 27 ills., 7 tables.

Description is presented of an investigation dealing with the theoretical considerations concerning the chromium-nickel-iron-carbon constitutional diagram, with factors influencing the existence of metastable phases, and, in consequence of the latter, with the so-called "decomposition" of these alloys. Such decomposition is known to be accompanied by the precipitation of a constituent generally believed to consist of carbides. It is suggested that the precipitated constituent is not necessarily a carbide; in fact, in low-carbon alloys, the precipitated constituent is, undoubtedly, magnetic chromium-nickel ferrite. That is to say, the nature of a separating constituent is dependent upon the carbon content of the alloy.

—STEEL, 1-30-33

Special Steels for Castings

By R. A. Bull, in The Foundry, January, p. 21, 3½ pp., the first of two articles on the suject.

Results of remarkable developments in the chemical composition and heat treatment of steel castings are outlined, the presentation including a discussion of consumer demand on the steel foundry, casting significance of nomenclature and composition, and description and evaluation of laboratory tests.

—STEEL, 1-30-33

Design and Production

By Harold F. Shepherd, part II of a series, in Machine Design, January, p 18, 3½ pp., 6 ills.

Second installment of this series of articles dealing with design from the production standpoint, discusses forgings. Control of metal flow, die pressing, upsetting, drop forging, and other procedures are included.

—STEEL, 1-30-33

Regrinding Worn Raceways

By W. G. Gude, in Abrasive Industry, February, p. 17, 2 pp., 2 ills.

Technique of regrinding worn bearing raceways and substitution of new balls, with reference to bearing materials and grinding equipment used for the work.

—STEEL, 1-30-33

Fabrication of 18-8

By J. A. McWilliams, in Metal Progress, January, p. 33, 4 pp., 1 ill., 3 tables.

Welding and fabricating 18-8 and 5-10 chrome-nickel steels as practiced in England.

—STEEL, 1-30-33

Insulated Covered Ladles

By D. O. Thomas, in The Foundry, January, p. 18, 3½ pp., 7 ills.

Development of an insulated and covered ladle for handling malleable iron in an automotive plant. Superheat required in the electric furnace has been reduced greatly by use of these new ladles.

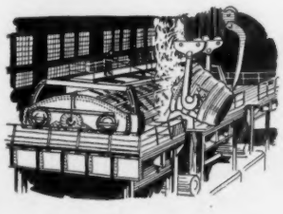
—STEEL, 1-30-33

PROGRESS IN STEELMAKING

FLEXING the abrasive belt around the contact roll and facilities for providing maximum cutting pressure have been incorporated in a newly developed machine for surfacing and polishing steel sheets. The carriage reciprocates, bringing the contact roll on the sheet from end to end, and as the table moves slowly crosswise the entire width of the sheet is brought under the roll. Confining the abrasive belt to a short contact traveling over the surface, promotes an efficient cutting action without the generation of undue heat. The water-cooled table rapidly carries away whatever heat is generated, thus permitting heavy cuts to be made without burning the sheet. By removing the belt and contact roll, brushes and buffing or polishing wheels can be employed.

♦ ♦ ♦

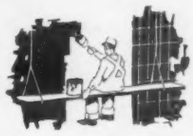
Corrosive action of acids, alkalies and chemical fumes is minimized by a recently developed protective coating. The new paint has exceptional properties of adhesion when applied to a properly prepared surface and dries in an hour to a hard, firm film retaining the elastic properties of its rubber base and conforming to any expansion or contraction of the steel support.



TWO steelworks mixers in the Great Lakes district have been equipped with air motors which, in case of power failure, return the vessels to the upright position. The control is so arranged that the mixer cannot be tilted unless the air pressure exceeds a predetermined minimum, thus assuring an emergency return.

♦ ♦ ♦

Boiler outages at one plant have been reduced from one cleaning and inspection every month to one every three months as a result of more complete combustion of the blast furnace gas made possible by recent improvements in the design of electrical precipitators. Because of cleaner heat-absorbing surfaces the efficiency of the boiler, economizer and air preheater has been increased.



WORKMEN identified with the rigging gang and pipe, paint, machine, blacksmith and other shops at blast furnaces and steel plants where paint, grease, oil and similar materials are handled will be interested in a new cream recently marketed to protect the hands. The product when rubbed on the skin before working, provides a film which prevents sticky and oily materials and dirt and liquid from entering the pores of the skin. The film is removed at the end of the day's work merely by washing the hands in running water.

♦ ♦ ♦

Capable of being molded or cast on the job into any desired shape, rapid setting in air, high structural strength and ability to withstand its temperature limit of 2600 to 2800 degrees Fahr. 24 hours after installation, are some of the benefits claimed for a new type refractory. The material is mixed with water to a consistency of stiff mortar and in this form is recommended for special shapes, heating furnace and oven door linings and for intricate construction requiring air and gas tightness.

♦ ♦ ♦

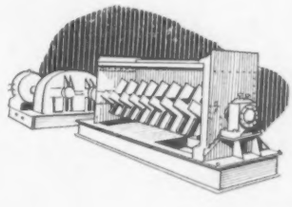
Experience of ingot mold manufacturers in England has shown that it is impossible to correlate mold life with the chemical composition of the mold metal.

♦ ♦ ♦

Flow of water, oil, gas and air in pipe lines now may be registered by a recently designed nonrecording device which consists of a vertical, transparent tube built with a tapered bore and with the small diameter at the bottom. The instrument is accurate within 1 per cent since the readings are claimed to be correct within capacity ranges from 100 to 10 per cent of the maximum flow.

♦ ♦ ♦

Interruption of the descaling process in rolling mills on account of solids suspended in the water plugging the small orifice sprays have been remedied by a recently developed filter. The unit installed on the high-pressure line is built with a motor-driven screen which is washed with a portion of the filtered water as it passes a given point. The suspended matter is carried off in the back wash water.



APPLYING a ⅛-inch thick bead of an abrasive-resisting alloy to the wear edge of pug mill paddles used at sintering plants for pugging flue dust to the proper consistency, increases their life about 33 1/3 per cent.

NEW EQUIPMENT

PRODUCTION FABRICATION TREATMENT FINISHING

Welding Electrode Holder Is Adjusted Easily

General Electric Co., Schenectady, N. Y., has developed a new type electrode holder for atomic-hydrogen arc welding with flexible tungsten electrodes. These flexible electrodes are carried in curved tubes, forming a part of the holder, and are brought into position through the means of a screw feed ejector.

General Electric electrode holder for atomic-hydrogen arc welding

In the new holder, shown herewith, the electrode is adjusted easily by means of the screw feed ejector and can be consumed to a length of approximately one and one-half inches, at which point the electrode will drop out of the nozzle tip. Before this occurs, a new electrode has been mechanically inserted into the ejector and a few turns of the screw feed places the electrode in welding position.

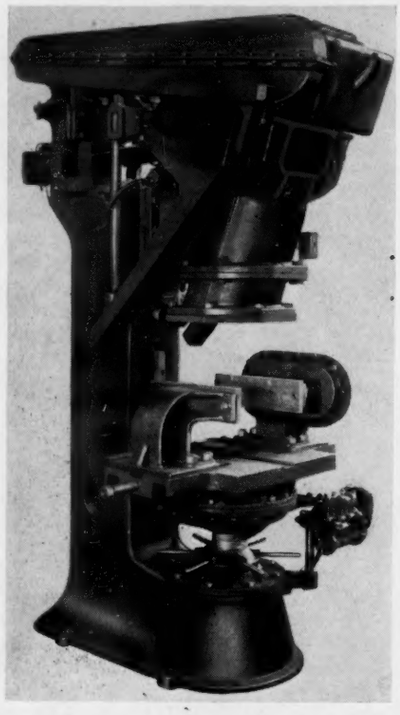
The tubes of the new holder are easily detached from the handle and the purchaser can make any necessary replacements at his own plant. Likewise, all other wearing parts have been arranged for quick and easy replacement. Another feature of the new electrode holder is its adjustment for controlling the position of the fan-shaped welding flame. The flame may be controlled to be either parallel to or at right angles with the axis of the handle by a slight turn of a thumb screw.

◆

Machine Blows Green and Dry Sand Cores

Osborn Mfg. Co., 5401 Hamilton avenue, Cleveland, has introduced a new machine for the production of cores in green sand or core sand. The unit, shown herewith, will blow cores much larger and heavier than previously was possible.

A feature is the use of rotating paddles within the sand reservoir. These paddles are set in motion during the blowing operation, thereby mixing thoroughly the air and sand. This design is said to increase the blowing efficiency and provide more uniform cores with a minimum of core box venting. Agitation is employed to prevent formation of craters within the sand reservoir, and to permit the blowing of cores of large volume without the presence of pockets or soft spots in any part of the core surface.



Osborn machine blows exceptionally large core in one operation

One blowing operation is sufficient to blow completely any core or mold within the capacity of the machine. The cycle of operations requires between 8 and 10 seconds from start to finish. A single operating valve controls all operations of the machine with the exception of the electrically operated rotating paddle mechanism which is controlled by a push button.

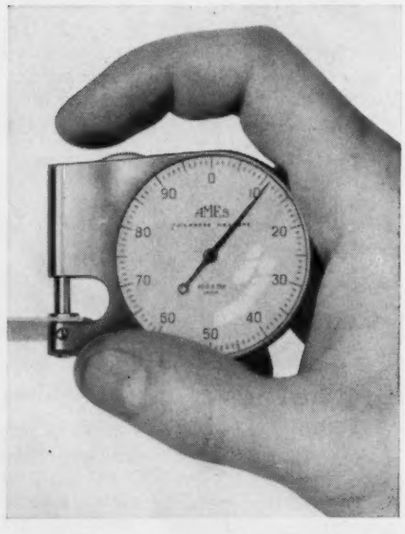
The steps necessary to produce a core are as follows: Place the core box in the machine; close the push button switch controlling the agitator mechanism; turn the handle of operating valve; when the operating valve handle returns to normal position, open the push button switch, remove the core box containing blown core from machine.

Clamping, blowing and unclamping of the core box or flask are controlled automatically by the main operating valve. Both vertical and horizontal clamps of the diaphragm type are employed. The horizontal clamps may be removed quickly to accommodate large horizontally split jobs. All adjustments for core box or flask space may be accomplished with only one wrench. A safety device prevents the blowing operation from taking place at any time when a core box or flask is not in place.

◆

Dial-Type Thickness Gage Is Small in Size

B. C. Ames Co., Waltham, Mass., recently introduced a dial-type thickness gage shown in the accompanying illustration. It is made of non-rusting metal with an unbreakable crystal, and the pointer is adjustable to zero on the dial by turning a screw to raise or lower the bottom anvil. The dial is graduated in 0.001-inch, and it is said measurements of 0.0005-inch are indicated plainly. The spindle is raised to open the anvils by turning the operating wheel at the top. When the wheel is released the anvils close with a uniform spring tension which is claimed to eliminate the element of personal touch.



Ames dial type thickness gage has an unbreakable crystal

Steel Demand Continues To Climb; Output Up

Auto Needs and Miscellaneous Orders Mainstay of Markets—Pig Iron Shipments Heavier—Sheet Bar Price Adjustment Probable

A FURTHER slow but apparently solid accumulation of miscellaneous demand enabled steel mill activity last week to record its fourth consecutive weekly increase, gaining one point to 19 per cent.

Production in the Pittsburgh, Chicago, Birmingham and eastern Pennsylvania districts expanded sufficiently to overcome the inertia of a stationary condition at Cleveland and Buffalo and a slight decline at Youngstown.

This week, Pittsburgh and Youngstown mills have heavier programs, but Buffalo will be in the off week of a staggered schedule, Birmingham will have rolled the rails causing last week's improvement and Cleveland may be injured by automotive strikes at Detroit. The net change, however, probably will be slight.

To snap back almost to 20 per cent in one month after the holiday low is obviously encouraging and is quietly generating confidence, but the iron and steel industry prefers to be overly cautious, to live from week to week and to be steeled against a temporary interruption of the upward march.

Unquestionably, despite the recent improvement, the market situation continues extremely spotty. Bookings of some district sales offices in January carry on the strain of increase which set in last July or August; others report January orders even lower than December. The fact that the January recovery has been effected without the aid of the railroads is noteworthy.

Largest steel pipe order in many months is the 14,000 tons booked by the Republic Steel Corp. for a Phillips Petroleum Co. line in Oklahoma and Kansas. A Pittsburgh district mill has closed on 2600 tons of pipe for the Philadelphia custom house and 1300 tons for a Bayonne, N. J., interest.

While structural steel awards the past week were low, only 6995 tons, a 20,000-ton warehouse in New York is being placed and pending work has broadened appreciably, partially by an 18,000-ton bridge at Hartford, Conn.

Miscellaneous releases of track fastenings have been good at Chicago. The Birmingham rail mill has booked 1600 tons for the Nashville, Chattanooga & St. Louis and 1000 tons for the Central of Georgia. An eastern carrier is attempting to break the market on spikes, perhaps an explanation of slow business.

Because the Detroit automobile body plants now tied up by strikes have just got under way on Ford contracts, the result may be more to block broader specifications for sheets than to curtail present production. However, Ford has issued holdups on all materials and parts, which will slow up a movement that was becoming promising.

Improvement in pig iron shipments has gained momentum all through January, and the increase over December exceeds expectations. Scrap appears stronger as consumption gains, and at Chicago an order for 5000 tons of steel and releases on old contracts are stimulating. Offers for steel scrap for shipment to Japan are firming the eastern seaboard markets.

Irregularities persist in sheet quotations, especially galvanized, and in a few days the proposals of nonintegrated mills that the $26 market in sheet bars be adjusted to the new lower sheet market probably will prevail. The recent reductions in wire products have developed some business.

When Boston recently opened bids on 1200 tons of cast iron pipe and found prices 25 per cent higher than a year ago new tenders were asked, but the latter grant a concession of only $1 from the first bids.

Weakness in galvanized sheets has pulled the iron and steel composite of STEEL down 1 cent to $28.54, lowest since November, 1915, and the finished steel composite down 10 cents to $45.70. The scrap composite is steady at $6.25.

Composite Market Averages

	Jan. 28	Jan. 21	One Month Ago Dec., 1932	Three Months Ago Oct., 1932	One Year Ago Jan., 1932	Ten Years Ago Jan., 1923
Iron and Steel Composite	$28.54	$28.55	$28.93	$29.32	$29.98	$41.17
Finished Steel Composite	45.70	45.80	46.74	47.64	47.28	59.01
Steelworks Scrap Composite	6.25	6.25	6.41	6.96	8.03	20.39

Iron and Steel Composite:—Pig iron, billets, slabs, sheet bars, wire rods, tin plate, nails, sheets, plates, shapes, bars, and black pipe. Finished Steel Composite:—Plates, shapes, bars, hot strip, nails, tin plate, pipe. Steelworks Scrap Composite:—Melting steel, compressed sheets.

COMPARATIVE PRICES OF IRON, STEEL AND COKE

Representative Market Figures for Current Week, Last Month, Three Months and One Year Ago

	Jan. 28, 1933	Dec. 1932	Oct. 1932	Jan. 1932
Pig Iron				
Bessemer, del., Pittsburgh	$15.76	15.76	15.76	17.26
Basic, valley	14.00	14.00	14.00	15.00
Basic, eastern, del. eastern Pa.	13.50	13.50	13.60	16.00
No. 2 foundry, del. Pittsburgh	15.76	15.76	15.76	17.26
No. 2 foundry, Chicago	15.50	15.50	15.50	16.50
*Southern No. 2, Birmingham	11.00	11.00	11.00	12.00
**No. 2X, Virginia furnace	17.75	17.75	17.75	18.00
**No. 2X, Eastern, del., Phila.	13.76	13.76	14.16	15.76
Malleable, valley	14.50	14.50	14.50	16.00
Malleable, Chicago	15.50	15.50	15.50	16.50
Lake Superior charcoal, del. Chi.	23.04	23.04	23.04	22.29
Gray forge, del. Pittsburgh	15.63	15.63	15.63	16.63
Ferromanganese, del. Pittsburgh	73.24	73.24	73.24	79.85
Coke				
Connellsville, furnace, ovens	1.75	1.75	2.00	2.25
Connellsville, foundry, ovens	2.50	2.50	2.75	3.25
Semifinished Material				
Sheet bars, open-hearth, Youngs.	26.00	26.00	26.00	26.00
Sheet bars, open-hearth, Pitts.	26.00	26.00	26.00	27.50
Billets, open-hearth, Pittsburgh	26.00	26.00	26.00	27.50
Wire rods, Pittsburgh	35.00	37.00	37.00	37.00

*1.75-2.25 silicon. For local delivery. Northern shipments based on $10, Birmingham. **2.25-2.75 silicon.

Delivered pig iron prices subject to 10 per cent freight surcharge, maximum 13.44c per gross ton, beginning Jan. 4, 1932.

	Jan. 28, 1933	Dec. 1932	Oct. 1932	Jan. 1932
Finished Material				
Steel bars, Pittsburgh	1.60	1.60	1.60	1.55
Steel bars, Chicago	1.70	1.70	1.70	1.70
Steel bars, Philadelphia	1.91	1.91	1.91	1.81
Iron bars, Chicago	1.65	1.65	1.65	1.60
Shapes, Pittsburgh	1.60	1.55	1.60	1.55
Shapes, Philadelphia	1.65	1.75	1.75	1.65
Shapes, Chicago	1.70	1.70	1.70	1.70
Tank plates, Pittsburgh	1.60	1.60	1.60	1.55
Tank plates, Philadelphia	1.64½	1.69½	1.79½	1.69½
Tank plates, Chicago	1.70	1.70	1.70	1.70
Sheets, No. 10 blue anneal., Pitts.	1.60	1.70	1.70	1.75
Sheets, No. 24, hot ann., Pitts.	2.00	2.10	2.10	2.20
Sheets, No. 24 galvan., Pitts.	2.60	2.85	2.80	2.80
Sheets, No. 10 blue anneal., Chi.	1.85	1.85	1.85	2.00
Sheets, No. 24 hot ann., Chi.	2.15	2.25	2.25	2.45
Sheets, No. 24 galvan., Chi.	2.65	2.90	2.90	2.95
Plain wire, Pittsburgh	2.10	2.20	2.20	2.20
Wire nails, Pittsburgh	1.80	1.95	1.95	1.95
Tin plate, per base box, Pitts.	4.25	4.25	4.75	4.75
Scrap				
Heavy melting steel, Pitts.	$8.25	8.70	9.50	10.25
Heavy melting steel, eastern Pa.	6.50	6.60	7.25	7.50
Heavy melting steel, Chicago	5.25	5.45	6.00	7.25
No. 1 wrought, eastern Pa.	6.50	6.60	7.25	9.35
No. 1 wrought, Chicago	5.00	5.05	5.60	7.25
Rails for rolling, Chicago	7.75	8.25	8.00	10.30

Sheets

Efforts at Stabilization to Be Renewed, as Prices Further Weaken—Volume Is Better

SHEET PRICES, PAGE 35

Pittsburgh — Efforts to clarify sheet prices are unavailing and the market continues weak. Reports are heard of widely divergent figures. Although some mills can deliver by all-water, reducing their freight $2 and $3 a ton, galvanized sheets even on all-rail deliveries are being figured back to around 2.65c, Pittsburgh. Black sheets are around 2.00c, but some orders are being booked at 2.10c and 2.20c.

Boston—Wheeling Steel Corp., Wheeling, W. Va., is low on the bulk of approximately 640 tons of flat sheets for the navy, mainly black and galvanized, although several other mills are low on small quantities for delivery to Boston, Portsmouth, N. H., and other eastern yards. Industrial demand for sheets is dull.

Philadelphia — Galvanized sheet prices have been reduced further to 2.60c, Pittsburgh, or 2.91c, delivered, subject to concessions. Cold rolled sheets, particularly No. 20 which were forced down under pressure of recent automomtive buying, now are more stable. The usual market on No. 10 hot rolled and Nos. 9-10 blue annealed now is 1.45c and 1.60c, Pittsburgh, respectively, or 1.76c and 1.91c, delivered.

New York—The local sheet market shows some signs of steadying. While galvanized sheets have undergone another substantial reduction and No. 10 hot rolled and Nos. 9-10 hot annealed are off slightly, No. 24 annealed and cold rolled products are unchanged. Galvanized sheets at 2.60c, Pittsburgh, or 2.95c, delivered are subject to shading.

Cleveland—The largest specifications for sheets continue to develop from the automotive industry, and little change is noted in volume from this source. Demand for enameling stock is off slightly. Barrelmakers find it more difficult to obtain releases. Standard Oil Co. of New Jersey, which ordinarily buys 600,000 or more drums for a half year, is understood to have purchased 60,000 recently for this period. For the Cleveland postoffice 300 tons of galvanized sheets have been awarded to a valley mill. Efforts are to be renewed shortly in the hope of stabilizing the sheet market. Black sheets are quoted by some makers at 2.10c, Pittsburgh, and galvanized at 2.65c, though prices as low as 1.90c and 2.45c, respectively, have been noted recently.

Cincinnati—Demand for sheets this month shows a decided improvement over December. Spot orders for automobiles, refrigerators and stoves continue sheet production schedules close to 30 per cent.

Chicago—Sheet sales are increasing slowly, with fair demand appearing from the automotive industry. Some small orders have been placed here by the Ford Motor Co., with more in prospect. Business from farm implement manufacturers continues light. Several hundred tons of No. 18 gage sheets for road strip and accessories will be required for highway construction in Illinois, for which contracts are being placed. Sheet mill operations average around 15 per cent. Price weakness appears concentrated on galvanized which are lower at 2.60c to 2.70c, base. Hot rolled annealed sheets generally are 2.10c.

St. Louis—Steel mill operations here have increased moderately, due principally to orders for sheets from the general manufacturing trade. Fewer sales of galvanized sheets are noted in the South.

San Francisco—Bids close Feb. 7 on 199 tons of cold rolled sheet steel for the Mare Island, Calif., navy yard and 28 tons of black flat sheets for Norfolk, Va.

CURRENT FINISHED STEEL PRICES

Delivered prices subject to freight surcharge corrected to nearest ½c. Asterisk denotes price change this week

Steel Sheets

HOT ROLLED No. 10
(24 to 48 inches wide)

Pittsburgh, base	1.45c to 1.55c
Gary, Ind. Harbor, base	1.55c to 1.65c
Chicago, delivered	1.60c to 1.70c
*New York, delivered	1.80c
Birmingham, base	1.70c
*Philadelphia, delivered	1.76c

BLUE ANNEALED No. 9-10

Pittsburgh, base	1.60c to 1.70c
Chicago, district mills	1.70c to 1.80c
Chicago, delivered	1.75c to 1.85c
*Philadelphia, delivered	1.91c
*New York, delivered	1.95c
St. Louis, delivered	2.04c
Birmingham, base	1.85c
San Francisco c.i.f.	2.32½c

HOT ROLLED ANNEALED No. 24

Pittsburgh, base	2.00c to 2.20c
*Gary, Ind. Harbor, base	2.10c to 2.20c
*Chicago, delivered	2.15c to 2.25c
*New York, delivered	1.95c
Philadelphia, delivered	2.31c to 2.41c
Birmingham, base	2.35c
St. Louis, delivered	2.54c
San Francisco, c.i.f.	2.85c
Detroit, delivered	2.28½c

GALVANIZED No. 24

*Pittsburgh, base	2.50c to 2.60c
*Gary, Ind. Harbor, base	2.60c to 2.70c
*Chicago, delivered	2.65c to 2.75c
*Philadelphia, delivered	2.91c
*New York, delivered	2.95c
Birmingham, base	3.00c
St. Louis, delivered	3.19c
San Francisco, c.i.f.	3.50c

AUTOBODY No. 20

*Pittsburgh, base	2.45c

FURNITURE

Pittsburgh, No. 10 heavy	2.40c to 2.50c
Pittsburgh, No. 20 light	2.90c to 3.00c

TIN MILL BLACK No. 28

*Pittsburgh, base	2.20c to 2.25c
*Gary, base	2.30c to 2.35c
St. Louis, delivered	2.67½c

HEAVY COLD ROLLED No. 10

*Pittsburgh, base	1.90c
*Gary, Ind. Harbor, base	2.00c to 2.10c
*Chicago, delivered	2.05c to 2.15c
Philadelphia, delivered	2.11c to 2.21c
New York, delivered	2.20c to 2.30c

COLD ROLLED No. 20

*Pittsburgh, base	2.30c
Gary, Ind. Harbor, base	2.50c to 2.60c
Chicago, delivered	2.55c to 2.65c
Philadelphia, delivered	2.56c to 2.66c
New York, delivered	2.70c to 2.80c

Wire Products

(Prices apply on straight carloads. Mixed and joint carloads take 10 cents higher price; pool carloads 25-cent advance; less carloads 40-cent advance.)

F.o.b. mills, 100 lb. keg

Standard wire nails	$1.80
Cement coated nails	1.80
Galvanized nails	3.30

(Per pound)

Polished staples	2.50c
Galvanized staples	2.75c
Barbed wire, gal.	2.30c
Annealed fence wire	2.25c
Galvanized wire	2.60c
Woven wire fencing (9-11 gage)	$50.00
(12½ gage and lighter)	$55.00

(To Manufacturing Trade)

Plain wire, 6-9 gage	2.10c
Spring wire	3.10c

Chicago and Anderson, Ind., $1 over Pitts.-Cleve.; Duluth and Worcester, $2 higher; Fairfield, Ala., $3 higher.

Steel Plates

Pittsburgh, base	1.60c
New York, delivered	1.70c to 1.90c
Philadelphia, del.	1.59½c to 1.79½c
*Boston, delivered	1.82c to 2.02c
Buffalo, delivered	1.85½c
Chicago, base	1.70c
Cleveland, delivered	1.78½c
Birmingham, Ala. base	1.75c
Coatesville, Pa., base	1.50c to 1.70c
Pacific Coast, c.i.f.	2.00c
St. Louis, delivered	1.94c

Structural Shapes

Pittsburgh, base	1.60c
Philadelphia, delivered	1.65c to 1.75c
*New York, delivered	1.77c to 1.87c
*Boston, delivered	1.90½c to 2.00½c
Chicago, base	1.70c
Cleveland, delivered	1.78½c
Lackawanna, N. Y., base	1.70c
Birmingham, Ala., base	1.75c
Pacific Coast, c.i.f.	2.10c
Do., wide flange	2.20c

Bars

SOFT STEEL

Pittsburgh, base	1.60c
Chicago, base	1.70c
Birmingham, Ala., base	1.75c
Lackawanna, N. Y., base	1.70c
Pacific Coast, c.i.f.	2.00c
Cleveland, base	1.65c
Philadelphia, delivered	1.91c
New York, delivered	1.95c
Boston, delivered	2.02c
Pittsburgh, cold finish	1.75c
Pittsburgh, forg. qual.	1.85c
San Francisco, c.i.f.	2.10c

RAIL STEEL

Chicago Heights	1.50c
Eastern mills	1.35c

IRON

Chicago, base	1.60c to 1.65c
New York, delivered	1.85c to 1.90c
Philadelphia, delivered	1.81c to 1.86c
Pittsburgh, refined	2.70c to 4.20c

REINFORCING

Pitts. billet cut lengths	1.65c
Pitts., stock lengths mill	1.50c
Chicago, billet	1.50c to 1.60c
Chicago, rail steel	1.20c to 1.30c
Philadelphia, cut lengths	1.81c to 1.96c
Cleveland, cut lengths	1.75c

Cold-Finished Bars, Shafting

Base Pittsburgh for one size, shape and grade for shipment at one time to one destination

10,000 to 19,999 pounds	1.70c
20,000 to 59,999 pounds	1.65c
60,000 to 99,999 pounds	1.60c
100,000 pounds and over	1.57½c

Chicago, Cleveland, Buffalo 5c higher; Detroit, 20c; eastern Michigan 25c

Corrosion, Heat Resist. Alloys

Base, Pittsburgh

18 per cent chrome, 8 per cent nickel Sheets, 35c; plates, 31c; bars, 28c

	A	B	C	D
Bars	19c	20.5c	23c	28c
Plates	21c	22.5c	25c	30c
Sheets	26c	27.5c	30c	35c
Hot Strip	19c	20.5c	23c	28c
Cold Strip	25c	26.5c	29c	34c

Carbon 0.12 and under; no nickel. A has chrome 15% and under. B over 15/18% inc., C over 18/23% inc., D over 23/30%.

Tin and Terne Plate

Per 100-pound box, Pittsburgh

Tin plate, coke base, cont.	$4.25
Tin plate, coke base, stock	3.75
Long ternes, 24 unassorted	2.70c to 2.80c

Gary, Ind., base 10 cents higher

Alloy Steel

Hot rolled, f.o.b. Pittsburgh, Buffalo, Chicago and Massillon, O. Base, 2.45c to 2.65c. Differentials to various classes of consumers

S.A.E.	Alloy Diff.		4600 .20 to .30 Mo. 1.25-1.75 Ni. 1.05
2000	0.25	5100 .80 - 1.10	
2100	0.55	Cr.	0.45
2500	1.50	5100 Cr.	
2500	2.25	spring	0.20
3100	0.55	6100 bars	1.20
3200	1.35	6100 Spring	0.95
3300	3.30	Cr., Ni., Van.	1.50
3400	3.20	Carbon van	0.95
4100 .15 to .25 Mo	0.50	9250 (flats)	0.25
		9250 (rds., sq.)	0.50

Strip, Hoops, Bands

Hot-rolled strip up to 23 15/16 in. wide Pitts.	1.45c
Do., Chicago	1.55c
Do., del. Philadelphia	1.76c
Do., del. New York	1.80c
Cooperage hoop, Pitts.	1.55c to 1.60c
Do., Chicago	1.65c to 1.70c
Cold roll, strip, Pitts., Cleve.	1.90c to 2.00c
Worcester, 3 tons or over	2.20c

Rivets, Wrought Washers

Struc., c.l., Pitts-Cleve.	2.25c
Struc., c.l., Chicago	2.35c
7/16-in. and smaller, Pitts., Chicago, Cleveland	70, 10 and 5 off
Washers, c.l., Pitts. dist.	6.50 to 6.75 off
Do., Chicago district	7.00 to 6.75 off

Rails, Track Material

Standard rails, mill	$40.00
Relaying rails, Pitts., 20 to 45 lbs.	$21.00 to 23.00
50 to 75	18.00 to 20.00
80 to 100	23.00 to 25.00
Light rails, 25-45, mills	$30.00
Light rails, Chicago	$32.00
Angle bars, mills	2.55c
Spikes, railroad, mills	2.40c
Spikes, boat, barge, Pitts.	2.65c
Track bolts, Chicago	3.50c
do., standard, jobbers	73 off list
Tie plates, Pittsburgh	$35.00
Tie plates, Chicago	$35.00

Bolts and Nuts

Pittsburgh, Cleveland, Birmingham, Chi. Discounts to legitimate jobbing or large consuming trade for full-case lots apply to Dec. 1, 1932, lists.

CARRIAGE BOLTS

All sizes, cut thread ..... 75 off
Rolled thread ½ x 6 and smaller take lower list.
Eagle list ..... 75 off

MACHINE BOLTS

All sizes, cut thread, lag screws, plow bolts, Nos. 1-2-3-7 heads, tap bolts, blank bolts, stud bolts without nuts ..... 75 off
Tire bolts ..... 60 and 10 off
Stove bolts, 77½, 25 and 10 off in pkgs.; 86 off in bulk.
Rolled thread machine bolts, ½ x 6 and smaller take lower list.

NUTS

Semifinished ..... 75 off

HEXAGON CAP SCREWS

Milled ..... 80-25 off
Upset 1 in. diam. and smaller 80-25-10 off

SQUARE HEAD SET SCREWS

Upset, 1 in. and smaller ..... 75-10-10 off
Headless set screws ..... 75-10 off
Upset, larger than 1 in. ..... 75-10 off

Cut Nails, Piling

Cut nails, c.l. Pittsburgh	$2.50
Do., less carloads, 5 kegs or over	$2.90
Less than 5 kegs	$3.05
Steel sheet piling, Pitts.	1.90c

Bars

Automotive and General Needs Hold Buying at Steady Level—Most Orders Are Small

BAR PRICES, PAGE 35

Chicago—Automotive bar demand is steady, and with occasional gains noted in specifications from miscellaneous users, the market retains its recent activity. Size of individual orders shows little change but purchases are slightly more numerous. Soft steel bars are fairly steady at 1.70c, Chicago, with rail steel bars holding at 1.50c and bar iron at 1.60c.

Boston—Outside of 63 tons of hot-rolled round bars, 1⅝-inch diameter, on which Midvale Co. is low at 4.14c, delivered, Charlestown navy yard, activity in bars is slight. Bolt, nut and other industrial consumers are taking little tonnage. The navy tonnage is grade V steel.

Philadelphia — Commercial steel bars are dull but unchanged at 1.60c, Pittsburgh, or 1.91c, Philadelphia. Common iron bars also are steady at 1.50c to 1.55c, Pittsburgh, or 1.81c to 1.86c, Philadelphia, with trading as dull as at any time in months.

Pittsburgh—Quotations on carbon steel bars are uniformly 1.60c, Pittsburgh. Although specifications are almost entirely for immediate delivery some hope is held for an improvement in more diversified buying during February. Releases continue on alloy bars for the automotive trade but aggregate tonnage is not significantly increased. The alloy bar price is firm at 2.45c to 2.65c.

Cleveland—Demand for commercial steel and alloy steel bars is the most active in the finished steel market, next to sheets. Though the automotive industry still is taking more than half the current output, requirements of the general manufacturing trade continue to show moderate increases. Commercial bars are firm at 1.65c, base, Cleveland.

San Francisco—Bids close Feb. 14 on 100,000 pounds of medium bar rivet steel, one-half inch diameter, 16 to 20 feet lengths, for the Mare Island navy yard. Prices will be taken for delivery and f.o.b.

Tin Plate Prices Firm; Mills at 45 Per Cent

Tin Plate Prices, Page 35

Pittsburgh—Tin plate is firm at $4.25 per 100-pound base box. Tin mills here are operating for the third week at 45 per cent. No. 28 gage tin mill black continues to be quoted 2.30c, Pittsburgh, but has been sold down to 2.20c, in competition with cold-rolled sheets for enameling purposes.

Cold-Finished Sales Hold At December Rate

Cold Finished Prices, Page 35

Pittsburgh—January was close to December in point of orders and shipments for cold-finished steel bars. Ordering is still light for both miscellaneous and automotive accounts. The price on cold-finished steel is holding, with 1.70c, Pittsburgh, quoted, as base for 5 to 10-ton lots.

Plates

Miscellaneous Requirements Increasing General Volume—Manufacturing Orders Better

PLATE PRICES, PAGE 35

Cleveland—Inquiries from small industrial users for plates and similar material for machinery and plant equipment picked up during the week. One builder of general manufacturing equipment reported business in ten days larger than in any one month last year. Other similar indications of some expansion in manufacturing are noted. Larger consumers of plates, including railroads and tank builders, are not active in the market. The local plate mill operates intermittently on accumulations of small orders. The 1.60c, base, Pittsburgh, is usual.

Boston—Plate fabricators are figuring small lots only. One recent letting included a 150-ton standpipe at Hingham, Mass. Prices are easy.

New York—Treadwell Engineering Co. is low on 48 tanks for a Bronx, (N. Y.) brewery. Refined Syrups Inc., Brooklyn, N. Y., is inquiring for 200 tons for molasses tanks.

Philadelphia—New bids are reported asked by the Virginia Ferry Corp. on a ferryboat which requires approximately 700 tons of plates. Prices have steadied somewhat, holding at 1.50c to 1.70c, Coatesville, or 1.59½c to 1.79½c, Philadelphia.

Pittsburgh—Bids which were to have been closed Jan. 26 by the West Kentucky Coal Co., Sturgis, Ky., on 1550 tons of plates for ten 175-foot coal barges, have been indefinitely postponed. Bids were opened Jan. 26 for 40 pontoons for Vicksburg, Miss., delivery which will require 300 tons. Plain material remains firm at 1.60c, Pittsburgh, in this district, the only irregularity being noted in the East.

Chicago—New inquiry for fabricated plate work is light and specifications from tank builders and railroads are unchanged. Prospective line pipe work is small and little business of this nature is looked for soon. Plates nominally continue 1.70c, Chicago.

Contracts Placed

360 tons, oil storage tanks, for Shell Petroleum Corp., Chicago, to Graver Tank & Mfg. Corp., East Chicago, Ind.

250 tons, can and nun buoys, lighthouse bureau, Staten Island, N. Y., to Tippett & Wood Co., Phillipsburg, N. J.

175 tons, tank, water system, Roanoke Rapids, N. C., to Schofield Iron Works, Macon, Ga.

Contracts Pending

1550 tons, ten 175-foot coal barges for West Kentucky Coal Co., Sturgis, Ky. bids of Jan. 26 withheld and further bids expected later.

700 tons, ferry boat, Virginia Ferry Corp., Norfolk, Va.; new bids reported asked.

300 tons, forty pontoons, Vicksburg, Miss.; Mississippi Valley Structural Steel Co., Decatur, Ill., low; bids Jan. 26.

300 tons, two steel oil barges, United States engineer, St. Paul; bids soon.

250 tons, plates and shapes, lighthouse tender DAHLIA; bids Feb. 15 to commissoiner of lighthouses, Washington.

200 tons, molasses tanks for Refined Syrups Inc., Brooklyn, N. Y.

125 tons, steel oil barge, United States engineer, Vicksburg, Miss.; bids Feb. 24.

100 tons, 15-ton steel hull, full revolving, steam operated derrick boat, United States engineer, Chicago; bids Feb. 1.

Unstated tonnage, four 1,000,000-gallon gasoline storage tanks on Jones island, Milwaukee, for unnamed refinery interest.

Unstated tonnage, 60,000-gallon steel water tank and tower for Hartland, Wis.; bids Jan. 28.

Unstated tonnage, steel floating dock, 393½ feet long, 60-foot beam with closed bow and hinged gate at stern, including oil engine generator, pumps, power and electric lighting systems, San Diego, Calif., bureau of yards and docks, Washington; bids March 8.

Railroads

Delay Met in Booking Orders For Rails and Fastenings— Repair Campaigns Are Slow

TRACK MATERIAL PRICES, PAGE 35

Chicago—In the absence of buying track material, fairly active releases against orders are slightly encouraging. Mild weather is permitting track work reflected in releases to mills. The outlook for new business remains unfavorable and little activity is noted in the freight car and locomotive markets. Car repair work continues at a low rate and specifications for steel products are affected similarly. Chicago, Burlington & Quincy railroad has ordered three 60-ton diesel switching locomotives.

Philadelphia — Delay in placing 5000 kegs of spikes for the Pennsylvania railroad is expected in some quarters. Aside from this, there is little railroad inquiry of any description. The Reading Co. has further car repair work under contemplation which may result in some fair buying next month. Possibility of the early placing of rails by at least one of the larger Southern railroads is considered likely here.

Pittsburgh—Railroad steel buying still is confined to negligible quantities and the past week saw no noteworthy business or inquiry. Inasmuch as there have been no recent rail releases, the local rail mill has not scheduled the rolling which was anticipated. Spikes are quoted 2.40c and tie plates at $35 per ton. Activity in light rails is confined to occasional carload orders or less. Nominally, $30 mill is the market.

Cleveland—Chesapeake & Ohio railroad has finally placed approximately 2,200,000 screws spikes, distributing the order among four or five makers. The purchase at this time, earlier than expected recently is believed to indicate the buying of some rails, possibly in February. Orders for miscellaneous car and repair work have not improved. Small lots of shapes are purchased occasionally for bridge repairs.

Birmingham, Ala.—An order for 1000 tons of rails placed by the Central of Georgia with the Tennessee Coal, Iron & Railroad Co., followed by an order for 1600 tons from the Nashville, Chattanooga & St. Louis, and a few other small orders warrant a rolling at the Ensley works for a week. Larger orders for rails are expected soon.

Locomotives Placed

Chicago, Burlington & Quincy, three 60-ton diesel switching locomotives to Midwest Locomotive Co., Cincinnati.

Rail Orders Pending

United States engineer, 830 tons, two projects, wharf, trestle and land trackage, Sand Island, Columbia river, near Astoria, Oreg., and repairs to south jetty Columbia river. United States engineer, Portland, Oreg., takes bids on both jobs soon.

Wire Shows Seasonal Gain; Price Cut Is Not Factor

Wire Prices, Page 35

Cleveland—Recent concessions in wire prices have not stimulated business, and in some instances have merely led buyers to seek still lower figures. At least one important maker has not revised its official quotations on wire, and wire products, and while meeting some competitive figures, is refusing to meet others. Some plain wire was booked during the week at 2.20c, though 2.10c is becoming more general.

The following extras on spring wire have been adopted by some makers:

Size, gage	Extra	Size, gage	Extra
5/16 to 9	Base	15	0.70
10	$0.10	16	1.10
11	0.15	17	1.30
12	0.25	18	1.75
13	0.35	19	2.00
14	0.50	20	2.75

Worcester, Mass.—Wire strand and cable requirements for the Connecticut river bridge at Hartford, Conn., bids closing March 13, include 650 tons of cable strand, 66,000 pounds of wrapping wire, 8000 linear feet 1⅞-inch diameter suspender rope and 6600 feet of ¾-inch hand rope. Wire demand shows a gradual improvement, but lower adjusted prices by several mills have failed to materially increase buying for spring delivery.

Pittsburgh—Wire product specifications have been less than before the recent reduction in prices. The present market is quoted $1.80 for straight carload lots of wire nails, 2.10c for plain wire and 3.10c for spring wire. Wire mill activity here is decidedly slack. A wire plant of one leading interest remains closed and another wire mill shut down a week ago.

Chicago—Demand for wire products continues to increase moderately in keeping with the usual trend at this season. Increase in specifications for manufacturers' wire is slight. Recent adjustment in prices is seen as having some stimulating effect to purchases, following previous uncertainty in quotations. Wire nails generally are $1.85 in carloads, with plain wire 2.15c.

Warehouse Sales Dull; Sheets and Wire Lower

Warehouse Prices, Page 50

New York—Weakness in black and galvanized sheets at mills is reflected in warehouses, jobbers quoting lower on both, 3.25c for No. 24 black and 3.75c for No. 24 galvanized.

Philadelphia — While warehouse trading over the past week has shown some slight improvement, some dealers doubt improvement over December. Most warehouse prices are unchanged.

Pittsburgh—Black wire is now quoted 2.65c and galvanized 3.10c out of stock, both being reductions of 10 cents. Cement coated and common nails are both quoted $2.20 per keg, off 15 cents. Reductions follow the recent cut in wire prices by mills. No improvement occurred in the warehouse trade here last month.

Cleveland—Warehouse business here so far this month is below the volume for the comparable period in either November or December. Except for some railroad orders, little is moving. Steel interests report a dearth in jobber demand.

Detroit—Warehouse business in iron and steel shows a slight decline as tool and die shops, for one thing, are extremely slack following the introduction of new models. An easy condition in demand in January, however, is not unusual. Prices are steady.

Cincinnati — Steel jobbers report tonnage this month will be little better than in December, with miscellaneous demand confined almost entirely to light orders. Prices show no change.

Chicago—Sales from warehouse decreased slightly during the past week, largely due to credit conditions which restricted buying at the month-end. January sales showed a slight gain over December. Sheet and wire product prices are continued at former levels.

St. Louis—Distribution of iron and steel from store continues to show slight improvement. Buying is almost exclusively of small lots, but from week to week the total is gradually picking up.

Structural Shapes

Eastern Market Busier, but Total Awards Are Lighter—2100 Tons Placed for New Jersey Bridge—20,000 Tons Up for New York Warehouse—Material Firmer

STRUCTURAL SHAPE PRICES. PAGE 35

New York—Structural steel lettings are heavier, led by 2175 tons for a bridge at Rutherford-Secaucus, N. J. The Marine hospital project, Staten Island, N. Y., 2400 tons, is again up, former bids having been rejected. James Stewart & Co., contractors for the 9500-ton federal courthouse, also are reported to have the contract for the St. John's Park warehouse, New York Central, 20,000 tons. More small public jobs are coming out. Plain material prices are steadier on ordinary lots at 1.60c, Pittsburgh, Fabricating shops in the East have generally reduced wages up to 25 per cent recently.

Boston—Awards are slightly heavier, several small projects, including the second ventilation building for the East Boston traffic tunnel being placed. The Connecticut river bridge, Hartford, bids March 13, taking close to 18,000 tons, is the largest project pending. Plain material prices are steadier on ordinary lots at 1.60c, Pittsburgh.

Philadelphia—Except two or three jobs in the Baltimore district, little work is active. Specifications may be out shortly for an apartment at Devon, Pa., requiring 1300 tons. Shapes are unchanged at 1.60c to 1.70c, nearest mill, with the lower price the usual figure. Pittsburgh Testing Laboratory, Pittsburgh, is low on field inspection of approximately 6550 tons of structural steel being fabricated for the United States custom house and appraiser's stores, Philadelphia, by McClintic-Marshall Corp., on a bid of 5c a ton, Jan. 23.

Pittsburgh—Five bridges to be bid Feb. 10 to the Pennsylvania department of highways require a total of 340 tons. Mill schedules on structural steel were slightly higher last week in this district. Plain material is 1.60c, Pittsburgh, but fabricated prices continue weak.

Cleveland—Several small private projects are being figured, and two state bridges, requiring an aggregate of 300 tons, still are pending. Plain shapes are steady at 1.60c, base, Pittsburgh. Bids close Jan. 31 on field inspection of 11,200 tons of structural steel for the Cleveland postoffice, and Jan. 27 on 1000 tons for the Omaha, Nebr., postoffice.

Chicago—Structural shape inquiry in this district has moderated slightly so far this month and the volume of pending work is declining, only small tonnages being placed. Recent orders consist principally of state bridge work. A few small World's fair buildings have been placed.

Contracts Placed

2175 tons, superstructure, double leaf bascule span bridge and three flanking spans, Hackensack river, route 3, section 2, between Hackensack and Secaucus, N. J., to American Bridge Co., Pittsburgh. Work also includes 90 tons of machinery and trunnions and 155 tons of reinforcing bars; bids Dec. 28.

700 tons, bridge, Keokuk, Iowa, to Clinton Bridge Works, Clinton, Iowa.

600 tons, bridge, Grand Junction, Colo., to Wisconsin Bridge & Iron Co., Milwaukee.

450 tons, state bridge R. C. 2298, Saugerties village, Ulster county, New York, highway 5601, to Lackawanna Steel Construction Corp., Buffalo; Morrell Vrooman Inc., Gloversville, N. Y., general contractor.

400 tons, ventilation building, North street, Boston, harbor traffic tunnel, to New England Structural Co., Everett, Mass.; Rugo Construction Co. Inc., Boston, general contractor.

340 tons, viaduct, Falls City, Nebr., to Omaha Steel Works, Omaha, Nebr.

250 tons, plant for United States Gypsum Co., Midland, Calif., to the Austin Co., general contractor, which will fabricate the steel in Cleveland district.

250 tons, 10-ton traveling crane, Puget Sound, Calif.; to Harnischfeger Sales Corp., San Francisco.

240 tons, highway bridge for United States bureau of public roads, Washington, to Pacific Car & Foundry Co., Seattle.

225 tons, postoffice, Ponca City, Okla., to J. B. Klein Iron Foundry Co., Oklahoma City, Okla.; through Rosen & Fishel Inc., Chicago, general contractor.

200 tons, state bridges, Rhode Island and Connecticut, to Joseph T. Ryerson & Son Inc. and Concrete Steel Co., Boston, each about 100 tons.

170 tons, highway bridge, Lickdale, Pa., to McClintic-Marshall Corp., Bethlehem, Pa.

135 tons, state bridges, Idaho, to Minneapolis-Moline Power Implement Co., Minneapolis.

125 tons, building, Chicago World's fair, for Firestone Tire & Rubber Co., to Hansell-Elcock Co., Chicago.

115 tons, Roosevelt grade separation for Pacific Electric railway, Los Angeles, to Consolidated Steel Corp., Los Angeles.

110 tons, postoffice, Port Chester, N. Y., to Ingalls Iron Works Co., Verona, Pa.; through Robert G. McKay, contractor.

110 tons, city garage, Binghamton, N. Y., to Leach Steel Co., Rochester, N. Y.

100 tons, including machinery, state bridge, Machias, Me., to Lackawanna Steel Construction Corp., Buffalo; Hector J. Cyr Co., Waterville, Me., general contractor.

100 tons, bridge, Tiskilwa, Ill., to Wisconsin Bridge & Iron Co., Milwaukee.

100 tons, horticultural building, Chicago World's fair, to Mississippi Valley Structural Steel Co., Decatur, Ill.

100 tons, bridge, Beacon, N. Y., to Joseph T. Ryerson & Son Inc., New York.

Awards Compared

	Tons
Awards, week ended Jan. 28	**6,995**
Awards, week ended Jan. 21	**11,332**
Awards, week ended Jan. 14	**6,283**
Awards this week in 1932	**16,163**
Av. weekly awards, 1932	**14,285**
Av. weekly awards, 1933	**6,515**
Av. weekly awards, Dec.	**31,804**
Total awards to date, 1932	**65,385**
Total awards to date, 1933	**32,575**

Contracts Pending

18,000 tons, suspension bridge, Connecticut river, Hartford, Conn.; bids March 13 to Connecticut River State Bridge commission, Raymound A. Johnson, County building, Hartford, chairman, Robinson & Steinman, New York, engineers.

9500 tons, superstructure, federal courthouse, New York; James Stewart & Co. Inc., New York, general contractor; granite construction.

5000 tons, estimated, federal office building, San Francisco; bids Feb. 28.

4000 tons, estimated, postoffice and courthouse, Columbus, O.; bids Feb. 17.

2400 tons, marine hospital, Stapleton, Staten Island, N. Y.; bids Feb. 21.

1800 tons, postoffice, Nashville, Tenn.; bids Feb. 15.

1300 tons, apartment, Devon, Pa.; project expected to be revived shortly.

900 tons, bridge beams, bridges, Florida.

800 tons, veterans' hospital buildings, San Francisco; Herbert M. Baruch Corp., Los Angeles, awarded general contract.

800 tons, addition, postoffice, Charlotte N. C., Ralph Sollitt & Sons Construction Co., South Bend, Ind., low.

700 tons, addition to state hospital, Rochester, N. Y.; bids Feb. 1.

600 tons, bridge, Clarksville, Va.; Wisconsin Bridge & Iron Co., Milwaukee, low.

500 tons, piling, breakwater, Peoria, Ill., boatyard for United States engineers; bids Feb. 20.

450 tons, postoffice, San Jose, Calif.; bids Feb. 17.

450 tons, prison buildings, Woodburne, N. Y., Babor & Comeau, New York, low. York also includes 300 tons of

reinforcing bars.
400 tons, postoffice, New London, Conn.; revised bids to be taken, first exceeding appropriation.
375 tons, postoffice, Beverly Hills, Calif.; McClintic-Marshall Corp., Bethlehem, Pa., low.
350 tons, Biggs Memorial hospital, Ithaca, N. Y.; John Johnson Construction Co., Buffalo, awarded general contract.
325 tons, addition, postoffice, Jersey City, N. J.; Iovacchini Bros., Highland Park, Pa., awarded general contract.
300 tons, addition, naval war college, Newport, R. I.; John Bowen Co., Boston, low, but revised bid by Edward J. Rappoli, Cambridge, Mass., being considered.
250 tons, shapes and bars, postoffice, Bloomfield, N. J.; bids Feb. 16.
250 tons, warehouse, American Oil Co., Philadelphia; A. V. Gilchrist, Philadelphia, general contractor.
250 tons, piling, Chesapeake and Delaware canal, Chesapeake City, Md.; bids asked through the United States engineer, Wilmington, Del.
200 tons, Erie railroad bridge, Endicott, N. Y.
175 tons, vaults, treasury building, Washington; work includes approximately 1200 tons of bars, plates and expanded metal; bids Feb. 2.
175 tons, shapes and bars, postoffice, Sarasota, Fla.; Joseph A. Tintari, Chicago Heights, Ill., awarded general contract.
140 tons, state highway bridge, Pittsfield, Mass. Lee Construction Co. Inc., Boston, general contractor.
130 tons, postoffice, Yuma, Ariz.; Robert E. McKee, Los Angeles, low on terra cotta finish.
125 tons, postoffice, Hattiesburg, Miss.; bids Feb. 17.
125 tons, postoffice, Chehalis, Wash. Murch Bros. Construction Co., St. Louis, low.
110 tons, shapes and bars, postoffice, Malone, N. Y.; bids Feb. 23.
100 tons, shapes and bars, postoffice Presque Isle, Me.; supplementary bids Jan. 19.
100 tons, shapes and bars, postoffice, Milton, Pa.; Fred C. Rowley Co., Hammond, Ind., low.
Unstated tonnage, piling for 1300 feet of bulkhead, Deal, N. J.; Snyder Engineering Co., Elizabeth, N. J., low on steel alternate.

Concrete Bars

Public Construction Providing Fewer and Smaller Orders, and Private Projects Are in Abeyance—Large Tonnage Pending for Hartford, Conn., Bridge

REINFORCING BAR PRICES, PAGE 35

New York—In addition to fair tonnages of bars, the New York Central warehouse and the federal courthouse will take large amounts of floor mesh. Concrete bar buying is fair, several public work projects having been placed. Prices on billet bars are inclined to easiness on the larger lots.

Boston—Reinforcing steel buying has improved slightly. The Connecticut river bridge, Hartford, will take a heavy tonnage. Recent bids on deformed bars, fabric or bar mat reinforcement in place in Connecticut brought out prices of 16c, 18c and 20c a square yard for the latter, and from 2.5c to 5c a pound for deformed. For a highway in Rhode Island 11c a square yard was bid by the successful contractor on a large area of steel fabric.

Philadelphia—Virtually the only important job in this district is the Lancaster, Pa., sewage disposal plant, requiring about 600 tons of bars. Billet steel in cut lengths is holding at 1.50c to 1.65c, Pittsburgh.

Pittsburgh—The bid of a Chicago contractor for the federal narcotic buildings at Lexington, Ky., which require 1000 tons of bars, has been rejected. Several small lots will be needed for Pennsylvania state bridge, bids Feb. 10. New billet bars are unchanged at 1.50c, Pittsburgh.

Chicago — Recent concrete bar awards, almost entirely for public work, include 365 tons for the Wilmette, Ill., waterworks and 150 tons for a Chicago bridge. Inquiry is light with little change noted in the volume of private work.

Contracts Placed

500 tons, road work, Illinois; 200 tons to Calumet Steel Co., Chicago; 200 tons to Kalman Steel Corp., Bethlehem, Pa., and 100 tons to Concrete Engineering Co., Chicago; previously reported to unstated fabricators.
400 tons, highway Briarcliff-Crotonville section, Westchester county, New York, to Wheeling Steel Corp., Wheeling, W. Va.; through A. E. Ottaviano Inc.

Awards Compared

	Tons
Awards, week ended Jan. 28	3,502
Awards, week ended Jan. 21	3,205
Awards, week ended Jan. 14	3,819
Awards, this week, 1932	5,562
Av. weekly awards, 1932	3,920
Av. weekly awards, 1933	3,478
Av. weekly awards, Dec.	2,370
Total awards to date, 1932	28,537
Total awards to date, 1933	17,393

365 tons, waterworks, Wilmette, Ill., to Truscon Steel Co., Youngstown, O.
300 tons, highway, Echo Lake-Pine Bridge section, Westechester county, New York, to Kalman Steel Corp., Bethlehem, Pa.; through Christopher Bros., Peekskille, N. Y.
325 tons, highway, Washington-Litchfield-Morris, Conn., to Kalman Steel Corp., Bethlehem, Pa.; through Altieri Construction Co., Waterbury, Conn.
287 tons, round steel bars, ¾ to ⅞-inch in 30-foot lengths; Panama to Gulf States Steel Co., Birmingham, Ala., for $9997.50, delivered; bids Jan. 5.
255 tons, highway, Seymour and Oxford, Conn., to American Steel & Wire Co. New York; through A. Arrigoni, Middleton, Conn.
250 tons, subway, Newark, N. J., to Faitoute Iron & Steel Co., Newark; through J. Rich Steers Inc.
220 tons, bridge, Barrowsburg-Callicoon, N. Y., to National Bridge Works, Long Island City, N. Y.; through Bursin Engineering Corp.
200 tons, school, Rome, N. Y., to Buffalo district producer.
150 tons, bridge, Lawrence avenue and Outer drive, Chicago, to Inland Steel Co., Chicago.
150 tons, highway, Stamford, Conn., to Wheeling Steel Corp., Wheeling Corp., Wheeling, W. Va.; through Paul Bacco, contractor.
145 tons, highway and grade separations, Sunrise highway extension, part 4, Suffolk county, New York, to National Bridge Works, Long Island City, N. Y.; through Anita Contruction Co.
150 tons, addition to armory, Binghamton, N. Y., to Buffalo district producer.
105 tons, United States engineer, Milwaukee, to Joseph T. Ryerson & Son Inc., and Concrete Steel Co., Chicago.
100 tons, grade crossings, Dongan Hills, Staten Island, N. Y., to Faitoute Iron & Steel Co.; through Bates & Rogers Construction Co.
100 tons, road work, Rhode Island, to Joseph T. Ryerson & Son Inc., Chicago.

Contracts Pending

1100 tons, contract No. 6, West bay superstructure, San Francisco-Oakland bridge; bids March 7.
1200 tons, addition to Rochester, N. Y., state hospital; bids Feb. 1.
1000 tons, federal buildings, United States narcotic farm, Lexington, Ky.; bid of Great Lakes Construction Co., Chicago, rejected. Low bid exceeded federal appropriation.
800 tons, Biggs Memorial hospital, Ithaca, N. Y.; John Johnson Construction Co., Buffalo, awarded general contract.
765 tons, contract No. 4-A, East bay substructure, San Francisco-Oakland bridge; bids March 2.
525 tons, marine hospital, Stapleton, Staten Island, N. Y.; bids Feb. 21.
375 tons, contract No. 4, East bay substructure, piers E 2 to E 5, San Francisco-Oakland bridge; bids March 2.
250 tons, superstructure, St. John's Park warehouse, New York, New York Central railroad; James Stewart & Co., contractor. Heavy tonnage of floor mesh required.
150 tons, bars and shapes, mainly former, bureau of yards and docks, Newport, R. I.; Turner Construction Co., New York, low.
140 tons, superstructure, federal courthouse, New York; James Stewart & Co., contractor. Several hundred tons of floor mesh also required.

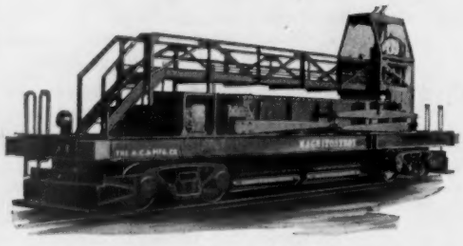
Pipe

Steel More Active, Cast Drags —14,000 Tons Placed for Oil Line, 2600 for Foundation

PIPE PRICES, PAGE 50

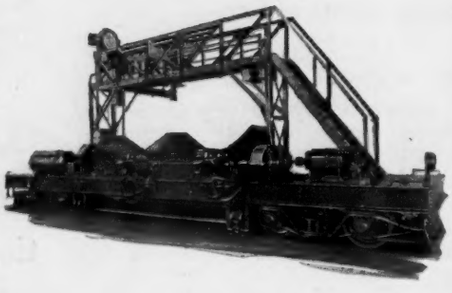
Youngstown, O.—Republic Steel Corp. has booked 14,000 tons of steel pipe for the Phillips Petroleum Co., Bartlesville, Okla., for a crude oil line from Oklahoma City to connect with the Phillips line in Kansas, running to the Kansas City refinery. Delivery on the contract, which is for approximately $1,000,000, will begin immediately.

ATLAS SCALE CARS



20 Ton — Double Compartment Scale Car. Journals provided with self aligning anti-friction bearings. Equipped with Atlas Indicator and Recorder.

20 Ton Two Compartment Scale Car with Orr Bin Gate Operating Mechanism. Anti-friction bearings. Equipped with Atlas Indicating and Recording Mechanism.



Other Atlas Products

Gas-Electric and Diesel-Electric Locomotives—Car Pushers—Storage Battery Locomotives—Electrically Operated Industrial Cars—Scale Cars and Weighing Cars of all kinds — Ore Transfer Cars and Blast Furnace Charging Cars.

Coke Oven Equipment

Pushers and Levelers—Coal Charging Cars—Door Handling Machines — Coke Quenching Cars.

Also Atlas Patented Indicating and Recording Mechanism for Weighing Scales.

THE ATLAS CAR & MFG. CO.

Engineers *Manufacturers*

CLEVELAND, OHIO

Chicago—While a number of construction projects involving cast iron pipe are being discussed few have approached the active state, and awards and definite inquiries continue small. No business is emanating from larger cities in the Middle West, which ordinarily are active buyers, and projects materializing require only a few tons at a time.

Boston—New bids on 1200 tons of cast pipe for Boston failed to bring out material weakness in prices. The first were rejected on the ground that they were about 25 per cent higher than last year, but the second quotations were scarcely $1 per ton lower than the first, this being accounted for by proposed water shipment by the low bidder. One inquiry for 1000 tons or more is developing.

New York—Utilities are buying and inquiring for small lots of cast pipe, the Brooklyn Union Gas Co. placing several hundred tons of cast in addition to steel pipe. Kings County Lighting Co. is inquiring for 100 tons or more of 6-inch cast. Municipal inquiry is light. Some requirements for highways and sewers may not be placed before spring. Prices range from $30 to $35, eastern foundry.

Newark, N. J. will open bids Feb. 9 on approximately 150 tons of 48-inch steel pipe. The Texas Co., New York, has placed 2100 tons of oil well casing and tubing.

Philadelphia—Contract for 2600 tons of steel pipe, largely 18 inches in diameter, for foundation work for the local customs house, has been placed, reliably reported to Spang, Chalfant & Co. Inc., Pittsburgh, This is the largest pipe order placed in this district during the week. Francis A. Canuso & Sons, local conrtactors, are expected to close shortly on 150 tons of steel pipe for the municipal viaduct in Thirtieth street.

Pittsburgh — Spang, Chalfant & Co. Inc., Pittsburgh, recently took an order for 20 miles of 8⅝-inch line pipe for the Tidal Oil Co., Bayonne, N. J., requiring 1300 tons. This is the first line business of any consequence to come into this district this year. Business in other tubular products is dull. Railroads are specifying little. Standard pipe is moving onily in small lots.

Birmingham, Ala.—A number of cast pipe awards to southern foundries are noted, but not enough to increase production. Business for February is more promising.

Cast Pipe Placed

350 tons, 6 to 12-inch, Memphis, Tenn., to United States Pipe & Foundry Co.,

Burlington, N. J.

100 tons or more, water system, Roanoke Rapids, N. C., to Lynchburg Foundry Co., Lynchburg, Va.; Fiske-Carter Construction Co., Spartensburg, S. C., general contractor.

225 tons, B castings, Boston, to Mechanics Iron Foundry Co., Boston; 2.25c per pound.

Steel Pipe Placed

14,000 tons, Phillips Petroleum Co., Bartlesville, Okla., to Republic Steel Corp., Youngstown, O.

2100 tons, oil well casing and tubing for Texas Co., New York, to unstated interest.

1300 tons, 20 miles 8⅝-inch line pipe for Tidal Oil Co., Bayonne, N. J., to Spang Chalfant & Co. Inc., Pittsburgh.

Unstated tonnage, cold-drawn seamless boiler tubes, navy, to Michigan Seamless Tube Co., $8419.69, Boston, Brooklyn and Norfolk, Va.; $6882.83, Mare Island, Calif., and Puget Sound, Wash., delivered all points named.

Cast Pipe Pending

1400 tons, 4 to 16-inch, Washington; Central Foundry Co., Birmingham, Ala., low. No bids received on steel pipe inquiry opened same date, Jan. 19.

1200 tons, 8 to 16-inch, Boston; Warren Foundry & Pipe Co., Boston, again low on readvertised bids Jan. 18.

1290 tons, 6 to 3-inch class 150, 250 and B, Pasadena, Calif.; bids Jan. 24.

570 tons, 6-inch class 250 or B, East Bay municipal utility district, Oakland, Calif.; bids Jan. 27.

410 tons, 10-inch class 150, San Francisco; bids about Feb. 15.

129 tons, 4 and 8-inch class 150 or B, Santa Cruz, Calif.; bids Jan. 30.

100 tons or more, 5000 to 10,000 feet, 6-inch, Kings County Lighting Co., Brooklyn, N. Y.

Steel Pipe Pending

Unstated tonnage, 1500 feet, 3-inch galvanized, delivery pier 65, New York, for transhipment to Coco Solo, C. Z.; bids Jan. 31, navy. Also 8120 feet, 5-inch and under, standard welded steel pipe, navy, Puget sound, Wash.; bids Feb. 14.

Unstated tonnage, 150 sections, 14 feet long, 16-inch I. D. steel shore pipe, United States engineer, Vicksburg, Miss.; bids in Jan. 27.

1933 Metal Congress and Show Go To Detroit

The fifteenth annual National Metal congress and exposition will be held in Detroit, Oct. 2-6. This decision was reached by the board of directors of the American Society for Steel Treating, the principal sponsoring organization, meeting in Cleveland, Jan. 20-21.

This will be the third time the congress and exposition has gone to Detroit, the first time being in 1922 and the second in 1927. Convention hall will house the exposition as it did in the latter year.

Selection of Detroit was made after considering advantages of several other cities, but Detroit, according to W. H. Eisenman, secretary of the society, offered exceptional facilities for both the show and the congress.

Invitations to participate in the congress already have been accepted by the Iron and Steel and Institute of Metals divisions of the American Institute of Mining and Metallurgical Engineers, American Welding society and Wire association. It is expected that the list of co-operating societies will include all of the other organizations regularly meeting with the congress. These include the Iron and Steel and Machine Shop Practice divisions of the American Society of Mechanical Engineers, Production Activity division of the Society of Automotive Engineers, and the American Drop Forging institute.

ELECTRO COATED
ThomaStrip
COLD ROLLED STRIP STEEL

Eliminate Costly Manufacturing Steps

● Electro coated with a selection of non-ferrous metals — zinc or copper — Thomastrip eliminates the need for costly pickling and plating equipment and handling expense . . . Sales appealing appearance, rust-resistance and the bond for product finishes are provided at low cost . . . Check Thomastrip for your product and production. Send for test samples specifying coat, width, gauge and finish desired. A Thomas representative will gladly assist you in solving your manufacturing problems.

The THOMAS STEEL CO.
WARREN, OHIO

ZINC
COPPER
COATED
•
BRIGHT
FINISH

Headquarters for Specialized Production Cold Rolled Strip Steel

Strip

Automobile Builders Placing Some Further Tonnage—Demand Is Fairly Steady

STRIP PRICES, PAGE 35

Pittsburgh—Led by hot-rolled, January's strip steel orders were better than December's in the experience of producers in this district. Rustless strip steel came in for its share of improvement, but cold-rolled was slow. Cold-rolled price is easy at 1.90c to 2.00c in view of marked declines in cold-rolled sheets. One strip producer here started its 8, 12 and 16-inch mills last week but produced more of the narrower widths. Another mill here schedules a rolling this week. There has been no change in hot-rolled prices, orders appearing to be based on 1.45c, Pittsburgh.

Philadelphia—Despite continued dullness and weakness in cold-rolled strip, which is holding at 1.90c to 2.00c, Pittsburgh, or 2.21c to 2.31c, delivered, hot strip is unchanged at 1.45c, Pittsburgh, or 1.76c, Philadelphia. The outlook still is unsettled.

Cleveland—Ford distributed some orders for strip recently, interests here sharing in the business, while specifications from other automotive builders and partsmakers have tapered slightly. Demand from makers of building material and equipment and other stampers has shown little improvement in recent weeks. Cold-rolled strip holds at 1.90c to 2.00c, base, Cleveland, and hot-rolled, 1.45c, Pittsburgh.

Chicago—Strip steel orders are fairly steady, additional improvement in demand from the automotive industry being absent. While some decrease next month in automotive requirements is anticipated, activity of the Ford Motor Co., it is thought, may sustain total tonnage. Miscellaneous orders involving small lots show occasional gains. Weakness in sheet prices has not been reflected in the market for hot strip, which continues 1.55c, Chicago. Cold-rolled strip is 2.00c. Pittsburgh-Cleveland.

Operations, week ended Jan. 28	**19**
Operations, week ended Jan. 21	**18**
Operations, week ended Jan. 14	**17**
Operations, one year ago	**28.5**
High for 1932, Feb. 6	**28.5**
Low for 1932, July 9 & Dec. 24	**12**

"KNOBBY-ette"
REG. U.S. PAT. OFF.
The New Lightweight FLOOR PLATE
Non-skid, strong, scientifically designed. Used where the heavier "KNOBBY" plate is not required.
Send for sample.
CENTRAL IRON & STEEL CO.
HARRISBURG, PENNA.
UNDERWRITERS' LABORATORIES INSPECTED S.A. 443

One Point Rise Puts Steel Rates Up to 19

Pittsburgh—Steel ingot operating rates averaged 16 per cent last week, up two points. A leading interest here operated during the week at 17-18 per cent, whereas schedules in another leading mill were slightly heavier. Open-hearth operations were resumed in an independent mill here early in the week. Indication for this week points to a continuation of 16.

Youngstown, O.—District steel operations dropped three points to 15 per cent in the week ended Jan. 28, but were expected to rebound to 20 per cent this week, with several plants resuming.

Buffalo—Steel works operations in the week ended Jan. 28 averaged 22 per cent, but this week will be down to 16 on account of staggered schedules. A decline last week was averted when schedules were unexpectedly lengthened. For the week beginning Feb. 6 an increase to 20 to 22 per cent is expected.

Cleveland—Steel ingot production here for the week ended Jan. 28 remained at practically 41 per cent. Jan. 23 the Corrigan, McKinney Steel Co. lighted a fifth open hearth, but at the close of the day Otis Steel Co. dropped from six to five, the American Steel & Wire Co., continuing with four.

Chicago—Operations of some independent mills increased during the past week, raising the district's ingot production two points to 15 per cent. Blast furnace schedules continue on their former basis of six active steelworks furnaces out of 36.

Birmingham, Ala.—Ingot operations have been stepped up temporarily from 20 per cent to 30 as the Tennessee Coal, Iron & Railroad Co. is rolling small lots of rails for the Central of Georgia and the Nashville, Chattanooga and St. Louis.

Philadelphia—Eastern steelmaking operations have advanced to around 13 per cent, with the placing in operation of three furnaces at Pancoyd, Pa., a recent development.

RAW MATERIAL PRICES

Delivered pig iron prices subject to 10 per cent freight surcharge, maximum 13.44c gross ton, from Jan. 4

Asterisk denotes price change this week

Pig Iron

Per Gross Ton

FOUNDRY, NO. 2	
Chicago, furnace	$15.50
Pittsburgh, dist. furnace..	15.00
Pittsburgh, delivered	15.63 to 16.13
Valley furnace	14.50 to 15.00
Cleveland fur., local del.	15.00
Philadelphia, delivered	13.26 to 13.76
Virginia furnace	17.25
Granite City, Ill., furnace	16.50 to 17.50
Buffalo, fur., local del.	16.00
Buff., all-rail, Boston	18.91 to 19.91
Buff., all-rail, Brooklyn	18.90
Buff., all-rail, Newark	17.28
Ala., Bir. fur., local del.	11.00
Ala., Nor. del., Bir. base	10.00
Alabama, del. Chicago	16.01
Alabama, del. St. Louis	14.42
Alabama, del. Cincinnati	13.82
Ala., Phila., dock del.	15.00 to 15.25
Ala., Balt., dock delivery	15.00
Alabama, New York dock..	15.50
Ala., Boston dock del.	15.75 to 16.75
Tenn., Bir. base, local del.	13.00
Tennessee, del. Cinci.	13.82
Montreal, delivered	23.00 to 23.50
Toronto, delivered	22.10
FOUNDRY, NO. 2X	
Buffalo, fur., local delivery	16.50
Buff., all-rail, Brooklyn	19.40
Buffalo, all-rail, Newark	17.78
Buff., all-rail, Boston	19.91 to 20.91
Virginia furnace	17.75
Eastern, del. Philadelphia	13.76 to 14.26
FOUNDRY, NO. 1X	
Buffalo fur., local delivery	17.50
Eastern, del. Philadelphia	14.26 to 14.76
MALLEABLE	
Valley furnace	14.50 to 15.00
Cleveland fur., local del.	15.00
Pittsburgh dis. fur.	15.00
Pittsburgh, delivered	15.63 to 16.13
Chicago, furnace	15.50
Buffalo, fur., local del.	16.50
Eastern Penna, delivered..	14.63 to 18.91
Granite City, Ill., fur.	16.50 to 17.50
Montreal, delivered	24.00
Toronto, delivered	22.60
BASIC	
Pittsburgh, district furnace	14.00
Pittsburgh, delivered	14.63 to 15.13
Eastern Penn., delivered	13.50
Buffalo fur., local delivery	15.50 to 16.00
Montreal, delivered	23.50
Valley, furnace	14.00
BESSEMER	
Valley furnace	14.50 to 15.00
Pittsburgh, furnace	15.00
Pittsburgh, delivered	15.63 to 16.13
LOW PHOS.	
Valley furnace, standard	25.00
Philadelphia, standard	22.76 to 25.79
Copper bear., E. Pa. fur.	20.50 to 21.50
GRAY FORGE	
Valley furnace	14.00
Pittsburgh district furnace	15.00
Pittsburgh, delivered	15.63 to 16.13
CHARCOAL	
Lake Superior, del. Chicago	23.04
SILVERY	

Jackson County, O., fur. in per cents: 6—$18; 7—$18.50; 8—$18.75; 9—$19; 10—$19.50; 11—$20; 12—$20.50; 13—$21.50; 14—$22.50; 15—$23; 16—$24; 17—$25.50.

Pittsburgh and Buffalo furnace: 7 to 10—$19; 15—$21 to $23.

BESSEMER FERROSILICON

Jackson County, O., fur., in per cents: 10—$20.50; 11—$21; 12—$21.50; 13—$22.50; 14—$23.50; 15—$24; 16—$25; 17—$26.50.

Coke

Prices Per Net Ton

BEEHIVE OVENS	
Connellsville furnace	$1.75 to 2.00
Connellsville foundry	2.50 to 4.00
New River foundry	6.00
Wise county foundry	4.25 to 5.00
Wise county furnace	3.50 to 4.25
BY-PRODUCT FOUNDRY	
Newark, N. J., delivered	8.21 to 8.81
Chicago, ovens, outside del	7.00
Chicago, delivered	7.75
New England, delivered	10.00
St. Louis, delivered	7.75
Birmingham, ovens	4.00
Indianapolis, delivered	7.75
Ashland, Ky., ovens, Connell., basis	4.50
Portsmouth, O., ovens Connell., basis	4.50
Buffalo, ovens	7.50 to 8.00
Detroit, ovens	8.00
Philadelphia, delivered	8.50

Iron Ore

LAKE SUPERIOR ORE	
Gross ton, 51½%, Lower Lake Ports	
Old range bessemer	$4.80
Mesabi bessemer	4.65
Old range nonbessemer	4.65
Mesabi nonbessemer	4.50
High phosphorus	4.40
EASTERN LOCAL ORES	
Cents per unit delivered at Eastern Pennsylvania New Jersey furnaces (Nominal)	
Foundry and basic, 56-63%, contract	7.50
Copper-free low phos. 58-65%	nom.
FOREIGN ORE	
Cents per units, alongside docks Atlantic ports (Nominal)	
Foreign manganiferous ore, 45-55% iron, 6-10% man.	8.00
North African low phos	7.00
Swedish basic, 65%	7.50 to 8.00
Swedish low phos.	8.00
Spanish, North African basic, 50 to 60%	7.00
Tungsten, spot, short ton unit, duty paid	$ 9.75 to 10.00
Newfoundland fdy., 55%	7.00
Chrome ore, 48% gross ton c.i.f.	$15.50 to 16.50

Manganese Ore

(Nominal)

Prices, not including duty, are cents per unit; cargo lots.

Caucasian, 52-55%	nominal
South African, 52%	18 to 19 cents
South African, 49-51%	nominal
South African, 44-47%	nominal
Indian, 48-50%	nominal
Brazilian, 46-48%	17 cents

Refractories

FIRE CLAY BRICK	
Per 1000 f.o.b. Works	
First Quality	
Pennsylvania, Ohio, Illinois, Kentucky, Maryland, Georgia, Alabama	$35.00
Missouri	32.00
Second Quality	
Pennsylvania, Ohio, Illinois, Kentucky, Md.	25.00 to 30.00
Missouri	26.00
Georgia, Alabama	30.00
SILICA BRICK	
Pennsylvania	$35.00
Joliet and East Chicago	47.00
Birmingham, Ala	50.00
MAGNESITE BRICK	
Per Net Ton	
Burned, 9 x 4½ x 2½	$61.50
Unburned, 9 x 4½ x 2½	52.00
CHROME BRICK	
Per Net Ton	
F.o.b. shipping point	$42.50
MAGNESITE	
Dead burned grain, net ton, Chester, Pa., or Baltimore bases	38.00
Domes, Chewelah, Wash., base	20.90

Semifinished Steel

Prices Per Gross Ton

BILLETS AND BLOOMS	
4 x 4-inch base	
Pittsburgh, open-hearth	$26.00
Pittsburgh, bessemer	26.00
Youngstown	26.00
Cleveland	26.00
Philadelphia	31.75
Chicago	26.00
Forging, Chicago	31.00
Forging, Pittsburgh	31.00
Forging, Philadelphia	35.75
SHEET BARS	
Pittsburgh	26.00
Youngstown	26.00
Cleveland	26.00
Chicago	28.00
SLABS	
Pittsburgh	26.00
Youngstown	26.00
Cleveland	26.00
WIRE RODS	
Pittsburgh, Cleveland	$35.00
*Chicago	36.00
SKELP	
All grades, Pittsburgh	1.50c to 1.60c

Ferroalloys

(In dollars, except Ferrochrome)

Ferromanganese, 78-82%, tidewater, duty paid	$68.00
Ferromanganese, del. Pittsburgh	73.24
Spiegeleisen, 19-20%, domestic fur. spot†	24.00
Ferrosilicon, 50 per cent, freight all., c. l.	74.50
Do, less carload	82.50
Do, 75 per cent	120.00 to 130.00
Spot, $5 a ton higher.	
Silicomang., 2½% carb.	85.00
2% carbon	90.00
1% carbon	100.00
Ferrochrome, 66-70 chromium, 4-6 carbon, cts. lb. con. del.	9.50
Do, for spot delivery	10.00
Ferrotungsten, stand., lb. cont.	0.94 to 1.00
Ferrovanadium, 35 to 40 per cent, per lb. contained, on analysis	2.60 to 2.80
Ferrotitanium, c.l., prod. plant, frt. allow., net ton	137.50
Spot, 1 ton, frt., all., lb.	8.50
Do, under 1 ton	9.00
Ferrophosphorus, per ton, carload 17-19 per cent, Rockdale, Tenn., basis; 18%, $2 unitage	50.00
Ferrophosphorus, electrolytic per ton carload, 23-26% f.o.b. Anniston, Ala.; 24%, $2.75 unitage	65.00
Ferromolybdenum, stand. 50-60 per cent, per lb.	0.95
Cal. Molybdate, lb. cont.	0.80
Molybdate, lb. cont.	0.80

†Carloads. Differentials apply to quant.

Fluorspar

85 and 5 per cent grade

Washed gravel, f.o.b. Ill., Ky., net ton car loads	$10.50
Washed gravel, import duty paid tide, gross ton	16.50

Pig Iron

January Shipments and Sales Well Above December's—Further Gains Indicated

PIG IRON PRICES, PAGE 43

Pittsburgh—A slight improvement is noted in the foundry melt in districts north and west of here, but the Pittsburgh district is quiet. Ingot molds were in better demand during January, and there were a few small orders for steel mill rolls. Though the Toronto, O., mill scheduled open-hearth operations recently no new pig iron tonnage has been released. Prices continue nominal.

Boston — Truck delivery of eastern Pennsylvania iron to some southern New England points is offering more competition to Dutch iron. The former has moved at $15.50 to $16, delivered, while Dutch iron at Providence usually ranges $13 to $14 dock. Small lots of Indian iron have sold at $14 to $15, dock.

New York—Carlot buying continues to dominate the market. Buffalo foundry iron is unchanged at $14, furnace, for delivery in this district, and eastern Pennsylvania iron is $12.50 to $13, furnace.

Philadelphia—The Japanese government, which is becoming a larger buyer of scrap in this district, is said to have withdrawn from the market as a seller of pig iron. Within the past two months approximately 800 tons of Japanese or Manchurian iron has arrived in this port, practically all for the account of two eastern cast iron pipe makers. The iron was reported sold at around $11.50, local docks. Domestic buying is of carlot character. Eastern Pennsylvania foundry iron is $12.50 to $13, base, furnace; and basic, nominally, $13.50, delivered, eastern Pennsylvania.

Cleveland—Small foundries on automotive work are doing better in some localities than are large foundries. Due to the demand for automotive castings, pig iron sales and shipments this month range from 20 to 30 per cent over December for the comparable period. Other lines have not shown material improvement. The base price for local delivery continues nominal at $15, furnace, with $13.50 to $14 for shipment to outside competitive districts.

Buffalo—January deliveries are somewhat in excess of those of December, but still at a slow rate. Only one furnace in the district is making iron.

Cincinnati—Little change is noted in the pig iron market, with shipments against old contracts steady, but new business restricted to carload lots. One or two stove foundries in this district are active.

Chicago—Pig iron shipments in January will show a fairly substantial increase over December. Requirements of small miscellaneous foundries largely are responsible for the gain, with the automotive industry contributing a large proportion of the business. Farm implement manufacturers have increased their shipments only slightly. Further improvement in the total movement is looked for next month, based on present shipping schedules. Pig iron prices remain steady at $15, furnace, for No. 2 foundry and malleable.

St. Louis—Several stove plants are preparing to resume part-time, and jobbing foundries have received enough business to operate two or three days a week. The leading local pig iron producer reports a reduction of about 60,000 tons in its stocks since going out of blast late last year.

Birmingham, Ala.—Orders are restricted to occasional carloads, with prices unchanged.

Toronto, Ont.—New business is developing better tonnage than earlier in the year, averaging about 500 tons a week. Furnaces have few if any contracts, melters buying only as required.

STRIP STEEL
HOT and COLD ROLLED

in regular carbon Steel of any analysis including alloy steels

also

RUST RESISTING METALS
in
CHROME and CHROME NICKEL
analysis

SUPERIOR STEEL CORPORATION

General Office
3122 Grant Building
Pittsburgh, Pa.

Works at
Carnegie, Penna.

SALES OFFICES

1904 Fidelity-Philadelphia Trust Bldg.
Philadelphia, Pa.

2100 Fisher Bldg.
Detroit, Mich.

Steel Sales Corp.
129 South Jefferson St.
Chicago, Ill.

H. L. Brown,
2001 Carew Tower
Cincinnati, Ohio

Brace-Mueller-Huntley Inc.
Buffalo — Rochester — Syracuse, N. Y.

Ferroalloy Shipments Show Further Gains

Ferroalloy Prices, Page 43

Ferromanganese specifications continue to reflect improvement in steelmaking operations. Ferromanganese is unchanged at $68, duty paid. Spiegeliesen 19 to 21 per cent, is $24, furnace, on spot carlots, while contract prices are subject to individual negotiation.

William E. Dunn Jr., secretary, Southern Metal Trades association, Atlanta, Ga., has endorsed the "Buy American" campaign.

Scrap

Some Tonnages Being Covered By Mills but Prices Show No Effect—Japan Takes Cargo

Chicago—Purchase of nearly 5000 tons of heavy melting steel scrap by two independent mills and an increase in shipments as a result of an upturn in open-hearth operations gives a better tone to the market. Prices are unchanged, $5.50 having been paid on recent orders, but the market is stronger in that supplies continue scarce. Railroads are selling only small lots from recent lists and in several cases bids have been rejected. Little change is noted in prices of other scrap grades. Small consumers continue to buy sparingly.

Boston—Iron and steel scrap is dull, although some buying continues on orders by water to eastern Pennsylvania and export. Worcester, Mass., offers for No. 1, No. 2 and skeleton scrap are unchanged, al-

IRON AND STEEL SCRAP PRICES

Corrected to Friday night. Gross tons delivered to consumers, except where otherwise stated

HEAVY MELTING STEEL

Birmingham	7.50 to	8.00
Boston, dealers	3.00 to	3.25
Buffalo, No. 1	7.00 to	7.50
Buffalo, No. 2	6.00 to	6.50
Chicago	5.00 to	5.50
Cleve., No. 1	7.00 to	7.50
Cleve., No. 2	6.00 to	6.50
Det., No. 1 deal.	4.50 to	5.00
Det., No. 2 deal.	3.50 to	4.00
E. Pa. del. mill		6.50
E. Pa., No. 2 del.	4.50 to	5.00
Granite City, Ill.	5.00 to	5.50
N. Y., deal. R. R.		5.00
N. Y. deal. No. 2		3.50
N. Y. deal. yd.	2.50 to	3.00
Pitts. No. 1	8.00 to	8.50
St. L. No. 1 sel.	5.50 to	6.00
Federal, Ill.	4.75 to	5.25
Valleys, No. 1	8.50 to	9.00

COMPRESSED SHEETS

Buffalo, dealers	6.00 to	6.50
Chi. (Factory)	4.00 to	4.50
Cleveland	6.50 to	7.00
Detroit, dealers	4.00 to	4.50
E. Pa. new mat.	5.00 to	5.50
Pittsburgh	7.75 to	8.25
Valleys	8.00 to	8.50

BUNDLED SHEETS

Buffalo	4.00 to	4.50
Cincinnati, del.	4.00 to	4.50
Cleveland	4.50 to	5.00
Eastern, Pa.		5.00
Pittsburgh	6.75 to	7.25
St. Louis	1.50 to	2.00

SHEET CLIPPINGS LOOSE

Chicago	2.00 to	2.50
Cincinnati	1.50 to	2.00
Detroit, dealers	1.25 to	1.75
St. Louis	1.50 to	2.00

STEEL RAILS SHORT

Birmingham	8.50 to	9.00
Boston, dealers	3.00 to	3.25
Buffalo	9.50 to	10.00
Chicago (3 ft.)	7.50 to	8.00
Chicago (2 ft.)	8.00 to	8.50
Cincinnati, del.	8.50 to	9.00
Detroit, deal.	8.00 to	8.50
Pitts. (open-hearth, 3 ft. and less)	10.00 to	10.50
St. Louis	7.00 to	7.50

STOVE PLATE

Birmingham	5.00 to	5.50
Boston, realers	2.00 to	2.50
Buffalo	7.25 to	7.50
Chicago, net	4.50 to	5.00
Cinci., deal. net	3.50 to	4.00
Det., net deal.	2.50 to	3.00
Eastern, Pa.		6.00
N. Y., deal. mill	2.50 to	3.00
St. Louis	5.50 to	6.00

COUPLERS, SPRINGS

Buffalo	8.50 to	9.00
Chicago	6.50 to	7.00
Eastern Pa.	8.00 to	8.50
Pittsburgh	9.00 to	9.50
St. Louis	5.25 to	6.25

ANGLE BARS—STEEL

Chicago	7.00 to	7.50
St. Louis	5.75 to	6.25

LOW PHOSPHORUS

Buffalo, billets and bloom crops	8.50 to	9.00
Cleveland bil. and bloom crops	10.00 to	11.00
Eastern Pa.	8.00 to	8.50
Pittsburgh billet bloom crops	10.00 to	10.50
Pitts., sheet bar crops	10.00 to	10.50

FROGS, SWITCHES

Chicago	5.00 to	5.50
St. Louis	5.00 to	5.50

SHOVELING STEEL

Chicago	5.00 to	5.50
Cleveland	5.75 to	6.00
St. Louis	4.75 to	5.25

RAILROAD WROUGHT

Birmingham	7.50 to	8.00
Boston, dealers	1.00 to	1.50
Buffalo, No. 1	4.50 to	5.00
Buffalo, No. 2	7.00 to	7.50
Chi., No. 1, net	4.50 to	5.00
Cinci., No. 2	5.00 to	5.50
Chicago, No. 2	5.00 to	5.50
Eastern Pa.		6.50
N. Y., No. 1, deal.	2.50 to	3.00
Pitts., No. 2	8.00 to	8.50
St. Louis, No. 1	3.50 to	4.00

SPECIFICATION PIPE

Boston	3.00 to	4.00
Eastern Pa.	7.00 to	7.50
N. Y., deal	2.00 to	2.25
St. Louis	4.75 to	5.25

BUSHELING

Buffalo, No. 1	6.00 to	6.50
Chicago, No. 1	3.50 to	4.00
Cinci., No. 1 dl.	4.00 to	4.50
Cinci., No. 2	2.50 to	3.00
Cleve., No. 2	3.00 to	3.50
Det., No. 1 new deal.	3.50 to	4.00
St. L., No. 1	3.00 to	3.50
Val. new No. 1	8.50 to	8.75

MACHINE TURNINGS

Birmingham	2.50 to	3.00
Boston, dealers	0.75 to	1.00
Buffalo	3.75 to	4.25
Chicago	3.00 to	3.50
Cinci., deal	3.00 to	3.50
Cleveland	4.50 to	5.00
Detroit	1.50 to	2.00
Eastern Pa.	3.00 to	3.50
N. Y., deal.	1.35 to	1.50
Pittsburgh	6.25 to	6.75
St. Louis	1.50 to	2.00
Valleys	6.25 to	6.75

BORINGS AND TURNINGS

For Blast Furnace Use

Boston, dealers	0.75 to	0.90
Buffalo	3.50 to	3.75
Cinci., deal	3.00 to	3.50
Cleveland	4.50 to	5.00
Detroit, deal	2.00 to	2.50
Eastern Pa.	3.50 to	3.75
N. Y., deal.	1.35 to	1.50
Pittsburgh	5.75 to	6.25

CAST IRON BORINGS

Birming., chem.	12.00 to	13.00
Birming., plain	2.50 to	3.00
Boston, chem.	5.50 to	6.00
Boston, dealers	1.00 to	1.25
Buffalo	4.25 to	4.50
Chicago	3.00 to	3.50
Cinci., deal.	3.00 to	3.50
Cleveland	4.50 to	5.00
Detroit, deal.	2.00 to	2.50
Eastern Pa.	3.50 to	3.75
E. Pa., chem.	8.00 to	10.00
N. Y., deal.	1.00 to	1.50
Pittsburgh	5.75 to	6.25
St. Louis	2.00 to	2.50

PIPE AND FLUES

Cinci., deal.	3.25 to	3.50

RAILROAD GRATE BARS

Buffalo	4.00 to	4.50
Chicago, net	5.00 to	5.50
Cincinnati	4.00 to	4.50
Eastern Pa.	5.50 to	6.00
N. Y., deal.	3.50 to	4.00
St. Louis	4.50 to	5.00

FORGE FLASHINGS

Boston, dealers	2.00 to	2.50
Buffalo	5.50 to	6.00
Cleve. ov. 10 in.	6.00 to	6.50
Detroit	2.75 to	3.25

FORGE SCRAP

Boston, dealers	1.75 to	2.00
Chicago	6.50 to	7.00
Eastern Pa., del.	5.00 to	5.50

ARCH BARS, TRANSOMS

Chicago, net	5.00 to	5.50
St. Louis	3.50 to	4.00

AXLE TURNINGS

Boston, deal.	2.50 to	3.00
Buffalo	6.25 to	6.75
Chi., elec. fce.	4.50 to	5.00
Cleveland	5.50 to	6.00
Eastern Pa., del.		7.00
Pittsburgh, O. H.	7.00 to	7.50
St. Louis	3.00 to	3.50

STEEL CAR AXLES

Birmingham	9.00 to	9.50
Boston, ship pt.	6.00 to	6.50
Buffalo	10.00 to	10.50
Chicago, net	8.50 to	9.00
Eastern Pa.		14.50
St. Louis	8.75 to	9.25

SHAFTING

Eastern Pa.	11.00 to	12.00
Boston, ship pt.	6.50 to	7.00
N. Y., deal.	5.50 to	6.00
St. Louis	7.50 to	8.00

CAR WHEELS

Birming., iron	7.00 to	7.50
Boston, iron deal.	3.00 to	3.25
Buffalo, iron	7.00 to	8.00
Buffalo, steel	8.50 to	9.00
Chicago, iron	7.50 to	8.00
Chi., rolled steel	7.00 to	7.50
Cincinnati iron	6.25 to	6.75
E. Pa. iron		8.50
E. Pa. steel	8.00 to	8.50
Pitts., iron	8.00 to	8.50
Pitts., steel	9.00 to	9.50
St. Louis, iron	4.75 to	5.25
St. Louis, steel	6.00 to	6.50

NO. 1 CAST SCRAP

Birmingham	8.00 to	8.50
Buffalo (Mach.)	9.75 to	10.25
Buffalo, cupola	9.00 to	9.50
Boston, textile	6.75 to	7.00
Boston, No. 2	2.00 to	2.25
Chi., mach. net	5.75 to	6.25
Chi., railroad net	5.50 to	6.00
Chicago, agri., net	5.00 to	5.50
Cinci., mach. cup	6.50 to	7.00
Cleve. cupola	7.00 to	8.00
Det., net deal.	6.50 to	7.00
E. Pa. cupola	9.00 to	9.50
N. Y., cup. deal.	4.50 to	5.00
N. Y., del. local foundries	7.00 to	7.50
Pitts., cupola	9.00 to	9.50
San Fran., del.	13.50 to	14.00
Seattle	4.50 to	6.50
St. L. No. 1 ma.	6.00 to	6.50
St. L. No. 1	5.50 to	6.00

HEAVY CAST

Boston, del.	3.00 to	3.25
Bost., mach. cast	7.00 to	7.50
Buffalo, break.	6.50 to	7.00
Cleve., break	5.50 to	6.00
Detroit, auto net deal.	7.00 to	7.50
Det. break., dl.	4.00 to	4.50
Eastern Pa.		8.00
N. Y. No. 1, dl.	4.50 to	5.00
N. Y. break, dl.	4.00 to	4.50
Pittsburgh	8.00 to	8.50

MALLEABLE

Boston, consum.	6.75 to	7.25
Buffalo	8.00 to	8.50
Chicago, agri.	5.00 to	5.50
Chicago, R. R.	5.50 to	6.00
Cinci., agri. del.	6.00 to	6.50
Cinci., R. R., del.	6.50 to	7.00
Cleveland, rail	7.50 to	8.00
Det. auto deal.	5.00 to	5.50
St. Louis	7.00 to	7.50

RAILS FOR ROLLING

5 feet and over

Birmingham	8.00 to	9.00
Boston, deal.	5.00 to	5.50
Buffalo	7.00 to	7.50
Chicago	7.50 to	8.00
Eastern Pa.		9.50
New York dealer	3.75 to	4.25
St. Louis	7.00 to	7.50

LOCOMOTIVE TIRES

Chicago, cut	7.00 to	7.50
St. L., No. 1	5.00 to	5.50

LOW PHOS. PUNCHINGS

Chicago	7.00 to	7.50
Buffalo	9.00 to	9.50
Eastern Pa.	8.00 to	8.50
Pittsburgh	9.50 to	10.00

though New England consumers are taking little scrap. Low prices continue to center most movement on water shipment.

New York—Stove plate, No. 2 steel and heavy breakable cast are firmer against old orders delivered at Harrisburg, Pa., and the latter grade for Coatesville, Pa., delivery. Stove plate is $5.75, delivered, No. 2 steel, $4.75, and heavy breakable cast $7.75. Meanwhile, No. 1 and No. 2 steel is firmer at New York, for barge loading for export, as scrap to fill some of these orders has been coming out slowly.

Philadelphia—A price of $6, alongside local docks, is being offered by a dealer here for a cargo of No. 1 heavy melting steel for Japan. Domestic buying is light, with local prices unchanged. While buying nothing for its eastern plants, the Bethlehem Steel Co. has closed on 2500 tons of heavy melting steel for its Lackawanna plant at a price of $7, delivered, the first tonnage to have been purchased for this plant in some time, and continues to buy relatively small quantities at $8, delivered.

Buffalo—About half a dozen carloads of stove plate have been sold to a district melter at $7.25. Otherwise the scrap market continues without activity.

Pittsburgh—Scrap quotations unchanged, at least until bids on 10,100 tons of No. 1 heavy melting steel on the 39,000-ton Pennsylvania railroad list are revealed. This will close Feb. 1 at Philadelphia but much of the heavy melting scrap is in the Pittsburgh district. No. 2 heavy melting is moving to three and possibly four points and has been advanced 25 cents to $7.25 to $7.75 after a 2500-ton purchase by the Butler, Pa., mill at $7.50. Thus No. 2 steel is wiping out the differential and approaches the quoted range of $8 to $8.50 on No. 1. A few foundries are taking some cast and recently a radiator interest bought a minor lot of cast. Turnings shipments into Brackenridge, Pa., are now resumed. No recent activity in bundled sheets, low phos or blast furnace scrap is noted.

Cleveland—One important steelmaker is taking in small lots of mixed borings and turnings for blast furnace use, and also a few hundred tons of strictly No. 1 heavy melting steel.

Cincinnati—Important consumers of iron and steel scrap continue out of the market and reports indicate they are cutting steadily into reserves. The situation gives hope for an early change in the dull market. Supplies at present prices are not plentiful in tonnage lots.

St. Louis—Mills purchased some heavy melting steel and steel specialties, the total being from 2000 to 2500 tons, in addition to the 2500 tons taken by an east side melter about the middle of the month.

Birmingham, Ala.—Steel and iron scrap has little activity aside from occasional small lot orders. Prices are nominal and largely dictated by consumers.

Toronto, Ont.—Iron and steel scrap markets are barren of interest. Demand is spotty and specialized. Sales are reported in machinery cast, dealers offering $9 per net ton. Dealers are out of the market, with prices unchanged.

Nut, Bolt Buying Brings Little Improvement

Bolt, Nut, Rivet Prices, Page 35

Pittsburgh—Bolt and nut orders in January about equaled December. Prices show no change, at 75 off list for bolts and nuts and 2.25c, Pittsburgh, base for large rivets. Wrought washers are unchanged at 6.50 to 6.70 off list.

Philadelphia—While bolts and nuts are easy at 75 off list, rivets appear firm at 2.25c, Pittsburgh. Trading generally is light.

Cleveland—General Motors releases for nuts and bolts are holding, but Ford is understood to have suspended all shipments temporarily. Railroad business is fair, including some good orders for track fastenings. Some makers anticipate they may be forced to adjust prices because of the recent reduction in wire, but are reluctant to do so in view of their revision last December.

Chicago—Slight improvement in bolt, nut and rivet demand from jobbers and farm implement manufacturers is more than offset by lighter requirements of the automotive industry, and total business shows no improvement over the December volume. Jobbers continue to order in small lots and have increased stocks little so far this month. The increase in farm implement purchases still leaves business in this industry sharply depressed compared with usual demand at this period. The decrease in specifications from the automotive industry points to a decline in its operations next month. Bolts and nuts continue 75 off, with large rivets 2.35c, Chicago.

Portland, Oreg. — Requirements for two federal engineer projects on the Columbia river, including a wharf, trestle and other work at Sand Island, near Astoria, Oreg., will require 101 tons of bolts, 89 tons of spikes, 15,200 pounds of track spikes, 28 tons of tie rods, 91,000 linear feet of wire rope and 26 tons of steel strap. The second project is for the repair of the south jetty in the Portland district. A large tonnage of piling will also be required.

Coke

Market Is Quiet, with Foundry Consumption Exceeding Shipments in Some Districts

COKE PRICES, PAGE 43

Pittsburgh—Mild weather has curtailed the movement of coke for domestic purposes and there are only minor variations in shipments of metallurgical grades. Beehive furnace coke holds around $1.75, and foundry $2.50 to $4, though these prices are subject to competitive pressure.

New York—Sellers of metallurgical coke report little change, with foundry operations in this district averaging less than 15 per cent. Beehive furnace coke is $1.50 to $2 and $2 to $2.15, Connellsville, for the heating and smelting grades, respectively; and beehive foundry, $2.50 to $4, western Pennsylvania ovens, depending upon grade. By-product foundry coke is $8.21 to $8.81, delivered, Newark, N. J.; $10, New England; and $8.50, Philadelphia.

Cincinnati—An upturn in demand for by-product foundry coke was noted during the week. Prices are unchanged.

Chicago—Increased consumption of foundry coke has failed to be reflected in a similar gain in shipments, while weather conditions continue to restrict activity in heating fuel. January shipments of the latter are substantially below those of December. Prices are steady.

St. Louis—A slight improvement in the melt at iron and steel plants is not yet reflected in coke demand. Fuel prices are steady.

Birmingham, Ala.—Production has been stepped up for the shipment of domestic coke to New England and the Middle West. Metallurgical grades are quiet.

Nonferrous Mill Products

Base price cents per pound f.o.b. mill except otherwise specified. Copper and brass product prices based on 5.50c, Conn., for copper

SHEETS	
Yellow brass (high)	11.00
Copper, hot rolled	13.62½
Lead sheets, cut, to jobbers	**7.00**
Zinc sheets (100-lb. base)	**9.00**
TUBES AND PIPES	
Seamless yellow brass (high)	13.25
Seamless copper	12.37½
RODS	
Yellow brass (high, full turning)	8.50
Naval brass	9.62½
ANODES	
Copper, untrimmed	10.50
WIRE	
Yellow brass (high)	11.00

Old Metals

Dealers' buying prices, cents lb.

NO. 1 COMPOSITION RED BRASS	
New York	2.37½ to 2.62½
Chicago	2.00 to 2.12½
Cleveland	2.25 to 2.50
St. Louis	2.25
HEAVY YELLOW BRASS	
New York	1.75 to 1.87½
HEAVY COPPER AND WIRE	
New York	3.50 to 3.75
Chicago, No. 1	2.87½ to 3.00
Cleveland	2.75 to 3.00
St. Louis	2.50
COMPOSITION BRASS BORINGS	
New York	2.25 to 2.50
YELLOW BRASS TUBING	
Cleveland	1.50 to 1.75
LIGHT COPPER	
New York	2.62½ to 2.75
Chicago	2.00 to 2.12½
Cleveland	2.25 to 2.50
St. Louis	2.25
LIGHT BRASS	
Chicago	0.87½ to 1.00
Cleveland	**1.00 to 1.25**
St. Louis	1.25
LEAD	
New York	**2.00 to 2.25**
Cleveland	1.50 to 2.00
Chicago	1.75 to 2.00
St. Louis	**2.00**
ZINC	
New York	**1.12½ to 1.25**
Cleveland	**1.00 to 1.12½**
Chicago	1.00 to 1.12½
St. Louis	**1.25**
ALUMINUM	
Clippings, new, soft, Cleve.	**9.50 to 10.00**
Clippings, hard, Cleveland	6.00 to 7.00
Borings, Cleveland	2.50 to 3.00
Mixed cast, Cleveland	4.00 to 4.50
Mixed cast, St. Louis	4.00 to 4.25

Secondary Metals

Brass ingot, 85-5-5-5	5.25
Remelt aluminum No. 12	**8.00 to 9.00**

Metals

Prices Fairly Steady Except on Zinc—Copper Now at 5.00c, for Second Quarter

New York — Prices maintained a fairly steady appearance last week with the exception of zinc which eased to 2.95c, East St. Louis. Buying was of recent dull proportions for most metals.

Copper—Customs smelters booked a light volume of business at 5.00c, Connecticut, for first quarter shipment. Some sellers were willing to take business at this figure for second quarter although 5.12½c generally was asked. Slightly better inquiry for metal was evident but this did not develop into much actual business. Domestic deliveries are variously estimated to average about half the current rate abroad. Foreign deliveries last year average 73,899 short tons per months, against 65,761 tons in 1931. Moderate business was done in the foreign market last week and prices stiffened perceptibly. This, however, failed to stimulate buying in this country or bolster the price situation.

Lead—Demand for lead was confined largely to carlots but increased interest was manifest in February needs compared with earlier in the month. The leading midwest seller booked a fair volume of business and it was estimated that total sales for the week compared favorably with the preceding week's business, which had shown an increase of around 50 per cent. Prices held steady with the New York price at 3.00c, and the East St. Louis figure at 2.87½c.

Zinc—Disclosure of business quietly done at 2.95c, East St. Louis, weakened the whole market structure and by the middle of the week business at 3.00c had disappeared.

Tin—Trading was confined mostly to small lots but quotations firmed up on strength in sterling exchange. Prices eased off somewhat late in the week, however, as sterling weakened. A sharp recovery in tin can come only when industrial production picks up measureably in the United States, is the consensus of leading opinion, despite curtailment activities of the International Tin committee.

Antimony — Demand continued light despite the recent firmness in the market.

Aluminum — The market continued quiet with prices unchanged.

By-Product Sales Improve

New York—Sulphate of ammonia is seasonally more active and some distributors are rushed on both spot and contract business. Demand for distillates also has stepped up moderately with prices firm. Chemical and rubber industries are taking more benzol than recently. Naphthalene shipments have been sluggish, some consumers being late in covering.

Coke By-Products

	Spot
Per Gallon, Producers' Plants, Tank Lots	
Pure benzol	$0.20
90 per cent benzol	0.30
Toluol	0.30
Solvent naphtha	0.26
Commercial xylol	0.26
Per Pound at Producers' Plants in 250-Pound Drums	
Phenol	0.153 to 0.173
Per Pound at Producers' Plants	
Naphthalene flakes	4.75 to 5.75
Naphthalene balls	4.75 to 5.75
Per 100 Pounds Atlantic Seaboard	
Sulphate of ammonia	$1.10

Quicksilver Steady

New York—Quicksilver prices are unchanged at $48, a virgin flask of 76 pounds, on round lots, and $49 a flask on small lots. In view of the lack of active purchasing sellers are encouraged by the fact no selling pressure has developed.

Nonferrous Metal Prices of the Week, Cents a Pound

Spot unless otherwise specified

	Copper			Straits Tin		Lead	Lead	Zinc	Aluminum	Antimony	Ingot
	Electro., del. Conn.	Lake, del. Midwest	Casting, refinery	New York Spot	New York Futures	N. Y.	East St. L.	St. L.	98-99% Spot, N. Y.		Nickel
Jan. 21	5.00	5.12½	4.75	22.75	22.90	3.00	2.87½	3.00	22.90	5.70	35.00
Jan. 23	5.00	5.12½	4.75	22.80	22.95	3.00	2.87½	3.00	22.90	5.80	35.00
Jan. 24	5.00	5.12½	4.75	23.00	23.15	3.00	2.87½	2.95	22.90	5.87½	35.00
Jan. 25	5.00	5.12½	4.75	23.12½	23.22½	3.00	2.87½	2.95	22.90	5.85	35.00
Jan. 26	5.00	5.12½	4.75	23.12½	23.27½	3.00	2.87½	2.95	22.90	5.85	35.00
Jan. 27	5.00	5.12½	4.75	23.00	23.12½	3.00	2.87½	2.95	22.90	5.80	35.00

Europe

Trade Slow but Shows Gains With Prices Firm and Output Larger—World Buying Better

London—(*By Radio*)—Trade in steel and iron is below expectations for this season but sentiment for an improvement is hopeful. A small lot of pig iron has been sold for shipment to Denmark. The recent rise in the price of Continental steel has removed fear of continued competition from that source.

Several lots of steel have been sold for shipment to the Far East. Galvanized sheet prospects for business in India are showing considerable improvement. Tin plate producers are engaged at 63 per cent of capacity.

Reports from the Continent are that demand from the Far East continues to furnish business and that prices are holding firmly. From Berlin reports are that prospects for trade with South America are good. Belgian steelmakers find competition from French mills is becoming less active.

Production of pig iron in Germany in December was the largest since November, 1931. The total was 384,000 tons, compared with 372,000 tons in November, 1932, and 426,000 in November, 1931.

Pacific Coast

San Francisco Bridge Steel Makes Most Coast Activity

San Francisco—(*By Air Mail*)—Bids have been called for over 85,000 tons of structural shapes, cables and castings for additional units of the San Francisco-Oakland bridge to be opened March 2 and 7. This structure is the largest project that has ever come up for figures in the history of the Pacific coast, and the various units will require close to 200,000 tons of steel. The Golden Gate bridge, awarded last year, called for only 110,000 tons.

Little real reinforcing bar business was placed, although several large projects have come out for figures. Bids open March 2 for contracts No. 4 and 4A, San Francisco-Oakland bridge, involving 375 tons and 765 tons, respectively. Bids open March 7 on 1100 tons for contract No. 6, the West Bay superstructure. Bids have been opened on 150 tons for a postoffice at Beverly Hills, Calif. Out-of-stock prices are weak at 2.00¢, base, on carload lots. Mild steel bars hold at 2.10c c.i.f., with movement confined to small lots.

Awards of structural shapes include 250 tons for a plant at Midland, Calif., for the United States Gypsum Co., placed with Austin Co. Bids open March 7 for contract No. 6, West Bay superstructure, San Francisco-Oakland bridge, involving 63,705 tons. Included are 42,500 tons of silicon steel, 19,500 tons of carbon steel, 280 tons of nickel steel, 25 tons of phosphorus-bronze steel, 750 tons of cast steel, 300 tons of heat-treated eyebars and 2555 tons of carbon steel eyebars. Bids open on the same date for contract 6A, cable and cable attachments, requiring 18,700 tons of cable, 830 tons of cable castings and 75 tons of high tensile bolts. Bids open Feb. 17 for 450 tons for a postoffice at San Jose, Calif. Wide flange material holds at 2.20c, c.i.f., standard shapes, 2.10c.

Cast iron pipe lettings involved only lots of less than 100 tons. Bids open this week on 1290 tons of 6 to 30-inch pipe for Pasadena, Calif. The East bay municipal utility district, Oakland, Calif., opened bids Jan. 27 for 570 tons. San Francisco will open bids about Feb. 15 for 410 tons of 10-inch pipe.

Seattle Prospects Good

Seattle—Several important construction projects are taking shape in the Pacific Northwest, although it may be months before work is under way. March 15 is set for opening bids for Seattle's power plant extension, including construction of a power house at Diablo dam, a transmission line and completion of the department's substation and office building. Cost is estimated at $1,500,000.

Less than 500 tons of structurals are pending and fabricators are short of work. Wallace Bridge & Structural Steel Co., Seattle, has booked 100 tons in several small contracts. Reinforcing demand is extremely light. Washington will open bids Jan. 24 for two concrete spans requiring 75 tons. About 130 tons in state highway work is pending.

Cast iron pipe inquiry is slow and no large projects are up for figures except Ft. Lewis, bids Jan. 24, totaling 264 tons.

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, Jan. 26

Export Prices f.o.b. Ship at Port of Dispatch—By Cable (or Radio)

	British gross tons U. K. ports	£ s d	Continental Channel or North Sea ports, metric tons Gold parity, $4.8665	£ s d	£ s d
PIG IRON					
Foundry, 2.50-3.00 Silicon	$ 9.92	2 18 6	$8.27		1 14 0
Basic bessemer	9.15	2 14 0*	6.57		1 7 0
Hematite, Phos. .03-.05	10.00	2 19 0	.....		.....
SEMIFINISHED STEEL					
Billets	$16.53	4 17 6	$9.98		2 1 0
Wire rods, No. 5 gage	25.43	7 10 0	21.90		4 10 0
FINISHED STEEL					
Standard rails	$26.27	7 15 0	$26.77		5 10 0
Merchant bars	.98c	6 10 0	.54c to .55c	2 9 0	to 2 10 0
Structural shapes	1.11c	7 7 6	.46c		2 1 6
Plates, †¼ in. or 5 mm	1.28c	8 10 0	.69c to .72c	3 2 6	to 3 5 0
Sheets, black, 24 gage or 0.5 mm.	1.28c	8 10 0	1.24c		5 12 6
Sheets, gal., 24 gage, corr.	1.59c	10 10 0	1.49c		6 15 0
Bands and strips	1.17c	7 15 0	.74c to .77c	3 7 6	to 3 10 0
Plain wire, base	1.40c	9 5 0	1.18c		5 7 6
Galvanized wire, base	1.66c	11 0 0	1.38c to 1.40c	6 5 6	to 6 7 6
Wire nails, base	1.66c	11 0 0	1.27c		5 15 0
Tin plate, box 108 lbs	$ 2.71	0 16 0	$3.20		0 13 2

British ferromanganese $68 delivered Atlantic seaboard, duty-paid. German ferromanganese £9 0s 0d ($43.74) f.o.b.

Domestic Prices at Works or Furnace—Last Reported

		£ s d	French Francs		Belgian Francs		Reich Marks	
Fdy. pig iron, Si. 2.5	$ 9.92	2 18 6	$ 8.00	205	$ 8.34	300	$14.99	63
Basic bessemer pig iron	9.15	2 14 0*	6.24	160	7.78	280	16.54	69.50
Furnace coke	2.29	0 13 6	4.84	124	3.06	110	4.57	19.20
Billets	16.95	5 0 0	14.43	370	10.15	365	22.97	96.50
Standard rails	1.25c	8 5 0	1.25c	697	1.50c	1,150	1.37c	127
Merchant bars	1.02c	6 15 0	.95c	530	.62c	475	1.19c	110
Structural shapes	1.32c	8 15 0	.99c	550	.61c	470	1.16c	107.50
Plates, †¼-in. or 5 mm	1.36c	9 0 0	1.17c	650	.75c	575	1.37c	127
Sheets, black	1.43c	9 10 0§	1.44c	800‡	.91c	700‡	1.56c	144‡
Sheets, galv., corr., 24 ga. or 0.5 mm	1.77c	11 15 0	2.43c	1,350	1.82c	1,400	4.00c	370
Plain wire	1.43c	9 10 0	2.03c	1,130	1.69c	1,300	1.92c	178
Bands and strips	1.43c	9 10 0	.90c	500	.81c	625	1.37c	127

*Basic. †British ship-plates, Continental, bridge plates. §24 ga. ‡1 to 3 mm. basic price.
British quotations are for basic open-hearth steel. Continental usually for basic-bessemer steel.

Equipment

Report New Russian Inquiry Totals About $1,000,000

New York—Resumption of activity by Russian interests, taking figures on a heavy list of machinery, reported to be for aircraft engine assembly, is the most important develoment in the machinery and equipment field. Quotations are reported in on a large list of machinery, including lathes, grinders and other equipment. Dealers and builders expect a good part of this business will be closed soon. While the bulk of buying by Japanese representatives probably has been completed in this country, some substantial business is still pending.

Worcester, Mass.—New England machinery builders are bidding on a list of equipment for Russia, including a substantial inquiry for grinders. Unconfirmed reports are that nearly $1,000,000 worth of equipment will be bought. Inquiry and sales to private interests are light, although some fair business for the navy is out, including two boring machines, arbor presses, turret lathe, Portsmouth, N. H.; lathe, Mare Island; engine lathe, Pensacola; cylinder grinder, Philadelphia; molding press, Portsmouth, N. H.; turret lathe, San Pedro; and several electric furnaces, for various points. Most New England sellers have been underbid recently on this work, although some of the business has gone to Providence, R. I., and Hartford, Conn., plants.

Pittsburgh—A slight pickup in ingot mold and refractory brick demand has occurred recently for some interests. This follows a decidedly dull month in December on molds and inconsequential business in brick previously. However, most refractory orders are being confined to immediate needs. A few steel foundries in this district have been receiving slightly better orders since the first of the year on various steel mill replacement castings and other mill parts. A Youngstown, O., equipment builder reports that more inquiries have been received for rolling mill equipment in the past few months than at any time in the first nine months of 1932. This interest's Ellwood City, Pa., plant has been operating at a fair rate.

The preponderance of inquiries over orders for rolling mill equipment still is noted by interests in the more immediate Pittsburgh district. Plant modernization programs are conceded of vital importance in many instances but the stumbling block continues to be release of needed appropriations.

Cleveland — Award of 16 screw machines by a General Motors unit to a builder here was a feature of the past week. These machines constitute the first step in a complete rehabilitation program being undertaken by this company, replacing and doing the same work as twice the present number of machines. All the new machines are to be equipped with the chronolog device for maintaining detailed record of operation. The builder of these machines reports business has been steadily increasing since last September and the present outlook continues to be encouraging.

Chicago—Inquiry for various types of machine tools and plant equipment shows moderate gains, while orders generally lack improvement. Most buyers, while optimistic regarding possibilities of expanding business over coming months, are unwilling or unable to make large investments in equipment not urgently required at present. Equipment sellers believe that a definite change in the immediate business outlook will result in a substantial increase in orders due to the fact that a fair volume of work is pending and inquiries are accumulating steadily. Railroads continue inactive in the market for plant equipment, while few inquiries are appearing from steel companies. Little additional business is noted from farm implement manufacturers, although a number of tools have been placed over the past three to four months. Occasional gains are noted in sales of used machine tools with distress prices applying on a large proportion of this equipment.

Sheet Bar Market Is Reported Easier

Semifinished Prices, Page 43

Billets and slabs generally are $26, Pittsburgh, but weakness is reported in sheet bars quoted nominally at $26 and a reduction is expected this week. Forging billets continue $31, on several minor orders, and wire rods are $35, Pittsburgh. A Pittsburgh district mill is preparing to produce wrought iron forging billets.

Bethlehem Steel Corp. and its subsidiary companies, McClintic-Marshall Corp. and Kalman Steel Corp., have moved their Detroit district sales offices from the Penobscot tower to 12-236 General Motors building.

Central Railroad of New Jersey, has moved its purchasing department from 143 Liberty street, New York, to Elizabethport, N. J.

Frank Samuel, *President* — S. A. Cochran, *Vice Pres.* — Snowden Samuel, *Sec'y. Treas.*

FRANK SAMUEL & CO., Inc.

Harrison Bldg., Philadelphia, Pa.

Alloys
Ferro Manganese
Ferro Chrome
Ferro Silicon
Calcium Silicide
Silico Manganese

Pig Iron
Low Phos
English
French

Muck Bars
Low Phos and Special
The American
Swedo Iron Co.'s

Manganese Ore
Open Hearth Use
Blast Furnace Use

Iron Ores

Chrome Ore
Lump
Ground

Branch Offices:

New York, 39 Cortlandt St. — Boston, Mass., 24 Alban Road — Pittsburgh, Tenth St. & Duquesne Way

STEEL, WROUGHT AND CAST IRON PIPE, AND TUBING

Base $200 net ton, except on standard commercial seamless boiler tubes under 2 inches and cold drawn seamless tubing.

Welded Iron, Steel Pipe

Base discounts on steel pipe, Pittsburgh and Lorain, O., to consumers in carloads, Indiana Harbor, Ind., and Evanston, Ill., 2 points less. Chicago delivered, 2½ points less. Wrought pipe, Pittsburgh base.

BUTT WELD

	Steel		Iron	
In.	Blk.	Gal.	Blk.	Gal.
⅛ & ¼	57	34	28	10½
⅜	62	49½	33	16½
½	65½	55	36	20½
¾	67½	57	38	21
1—3				

LAP WELD

2	61	50½	26	12½
2½ to 6	64½	54	2½—3½ 33	18½
8	62	51	4—6 35	22
10	60	49	7—8 34	21½
12	59	48	9—12 31	16½

BUTT WELD

Extra strong, plain ends

⅛	48	33	¼ & ⅜ +7	+41
¼ & ⅜	53½	38½	½ 28	12½
½	59	49½	¾ 33	17½
¾	63½	54	1—2 39	23

LAP WELD

Extra strong, plain ends

2	59	49½	2 34	18½
2½ to 4	62½	53	2½—4 39	25
5 & 6	62	52½	4½—6 38	24
8	58	47	7 & 8 36	22
10	51½	40½	9—12 26	13½
12	50½	39½		

STEEL LINE PIPE

2 to 3 butt	66½	2½ to 6 lap	63½
2 lap	60	8 lap	61
10 lap	59	12 lap	58

Discounts on steel pipe are net and not subject to any point or preferential. On iron pipe, the discounts are net.

BOILER TUBES

Carload discounts, f.o.b. Pittsburgh

Lap Welded Steel		*Charcoal Iron*	
2—2¼	38	1¾	8
2½—2¾	46	2—2¼	13
3	52	2½—2¾	16
3¼—3¾	54	3	17
4	57	3¾—3½	18
4½—6	46	4	20
1½	1	4½	21

On lots of a carload or more, above base discounts subject to preferential of two 5 per cent discounts on steel and 10 per cent on charcoal iron.

Lap Welded Steel—Under 10,000 pounds, 6 points under base and one 5 per cent; on 10,000 pounds to carload, 4 points under base and two 5 per cents. Quantity discounts same as for hot rolled, in next column. Charcoal Iron—under 10,000 pounds, 2 points under base; on 10,000 pounds to carload, base and one 5 per cent.

STANDARD COMMERCIAL SEAMLESS BOILER TUBES COLD DRAWN

1 inch	61	3	46
1¼—1½	53	3¼—3½	48
1¾	37	4	51
2—2¼	32	4½, 5, 6	40
2½—2¾	40		

HOT ROLLED

2—2¼	38	3¼—3½	54
2½—2¾	46	4	57
3	52	4½, 5, 6	46

Quantity discounts are: Under 10,000 pounds, 10 points and 5 per cent; 10,000 to 24,999 pounds, 6 points and 5 per cent; 25,000 pounds to carload, 2 points and 5 and 5 per cent; carload and over, base discount and 5 and 5 per cent. No extra for lengths up to and including 24 feet. Sizes smaller than 1 inch and lighter than standard gage to be held at mechanical tubes list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

Seamless Tubing

Cold drawn; f.o.b. mill discounts

Random lengths over 5 ft. 55%
Selected lengths, 1—18 ft. 53%

Cast Iron Water Pipe

Class B Pipe—Per Net Ton

Six-inch and over, Bir. .....$32.00 to 33.00
Four-inch, Birmingham .... 35.00 to 36.00
Four-inch, Chicago ..... 43.40 to 44.40
Six to 24-inch, Chicago..... 40.40 to 41.40
Six-inch and over, N. Y..... 32.00 to 34.50
Four-inch, New York ..... 34.50 to 36.50
Stand. fittings, Bir. base.... $90.00

Six to 24-inch, base; over 24-inch plus $20; 4-inch, plus $10; 3-inch plus $20; gas pipe fittings, $5 higher. Class A pipe $3 higher than Class B.

Warehouse Quotations at Leading Centers, in Cents Per Pound

(All Philadelphia prices subject to quantity differentials except reinforcing and Swedish bars)

STEEL BARS

Baltimore*	2.35c
Boston††	2.90c
Buffalo	2.95c
Chattanooga	3.00c
Chicago	2.75c
Cincinnati	3.00c
Cleveland	2.75c
Detroit	2.85c
Houston	2.40c
Los Ang.	3.30c
New York‡(d)	3.10c
Philadelphia	2.45c
Pittsburgh	2.60c
Portland	3.35c
San Fran.	3.15c
Seattle	3.00c
St. Louis	3.00c
St. Paul	3.00c
Tulsa	3.25c

IRON BARS

Baltimore	2.35c
Boston††	3.10c
Buffalo	3.15c
Chattanooga	3.00c
Chicago	2.75c
Cincinnati	3.00c
Detroit	2.85c
New York‡(d)	3.10c
Philadelphia	2.45c
St. Louis	3.00c
Tulsa	3.25c

REINFORC. BARS

Baltimore	2.35c-3.00c
Boston	3.10c-3.25c
Buffalo	2.95c
Chattanooga	3.00c
Cincinnati	3.00c
Cleveland	2.10c-2.25c
Detroit	2.85c
Houston	3.00c
Los Ang. cl.	2.10c
Los Ang., lcl	2.40c
New York	2.65c-3.10c
Phila.	2.62½c
Pittsburgh	2.60c
San Fran. cl.	2.40c
San Fran. lcl	2.80c
Seattle	3.00c
St. Louis	3.15c
Tulsa	3.25c
Young.	2.30c-2.60c

SHAPES

Baltimore*	2.35c
Boston††	3.00c
Buffalo	3.20c
Chattanooga	3.20c
Chicago	3.00c
Cincinnati	3.25c
Cleveland	2.95c
Detroit	3.10c
Houston	2.65c
Los Ang.	3.30c
New York(d)	3.10c
Philadelphia	2.45c
Pittsburgh	2.85c
Portland	3.35c
San Fran.	3.15c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.25c
Tulsa	3.50c

PLATES

Baltimore*	2.35c
Boston††	3.00c
Buffalo	3.20c
Chattanooga	3.20c
Chicago	3.00c
Cincinnati	3.25c
Cleveland, ¼-in. and thicker	2.95c
Cleve., 3/16-in.	3.20c
Detroit	3.10c
Det., 3/16-in.	3.10c
Houston	3.00c
Los Angeles	3.30c
New York(d)	3.30c
Philadelphia	2.45c
Phila. floor	5.10c
Pittsburgh	2.85c
Portland	3.35c
San Fran.	3.15c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.25c
Tulsa	3.50c

NO. 10 BLUE

Baltimore*	2.80c
Boston††	2.90c-3.00c
Buffalo	3.10c-3.25c
Chattanooga	3.50c
Chicago	2.75c-2.90c
Cincinnati	3.05c
Cleveland	3.00c
Detroit	2.90c-3.05c
Houston	3.35c
Los Ang.	3.60c
New York	3.00c
Portland	4.00c
Phila.*† (e)	2.90c
Pitts.**	3.00c
San Fran.	3.50c
Seattle	4.00c
St. Louis	3.00c-3.15c
St. Paul	3.45c
Tulsa	3.70c

NO. 24 BLACK

Balt.*†	3.50c
Boston††	3.85c
Buffalo	3.70c
Chattanooga	3.65c
Chicago	3.45c
Cincinnati	3.50c
Cleveland	3.25c
Detroit	3.50c
Los Ang.	4.20c
New York	3.25c
Phila.*†(e)	3.40c
Pitts.**	3.20c-3.40c
Portland	4.50c
San Fran.	3.90c
Seattle	4.50c
St. Louis	3.70c
St. Paul	3.695c
Tulsa	4.75c

NO. 24 GAL. SHEETS

Balt.*†	4.00c
Buffalo	4.00c
Boston††	4.05c
Chattanooga	3.95c
Chicago	3.50c-3.75c

††Base 15,000 lbs., extras on less.

Cincinnati	3.90c
Cleveland	3.75c
Detroit	3.75c
Houston	3.57c
Los Ang.	4.50c
New York	3.75c
Phila.*†(e)	3.75c
Pitts.**	3.90c
Portland	5.00c
San Fran.	4.55c
Seattle	5.00c
St. Louis	4.00c
St. Paul	4.19c
Tulsa	5.10c

†BANDS

Baltimore	2.65c
Boston††	3.40c
Buffalo	3.30c
Chattanooga	3.20c
Chicago	2.95c
Cincinnati	3.20c
Cleveland	3.00c
Det. 3/16-in. & lighter	3.15c
Houston	2.85c
Los Ang.	3.80c
New York(d)	3.30c
Philadelphia	2.75c
Pittsburgh	2.95c
Portland	3.85c
San Fran.	3.15c
Seattle	3.50c
St. Paul	3.20c
Tulsa	3.45c

†HOOPS

Baltimore	2.65c
Boston	4.90c
Buffalo	3.95c
Chicago	3.50c
Cincinnati	3.75c
Det. No. 14 & lighter	3.30c
New York	3.30c
Philadelphia	3.00c
Pittsburgh	3.60c
Seattle	5.00c
St. Paul	3.75c

†New extras apply.

COLD FIN. STEEL

Rounds and Hexagons

Baltimore (c)*	3.48c
Boston	3.60c
Buffalo	3.00c
Chattanooga*	3.65c
Chicago	3.00c
Cincinnati	3.32c
Cleveland	2.95c
Detroit	3.15c
Los Ang. (a)	4.25c
New York(g)	3.54c
Pittsburgh	2.95c
Portland (a)	4.50c
San Fran(d)(f)	5.55c
Seattle (a)	4.50c
St. Paul (a)	3.20c
St. Louis	3.36c
Tulsa	4.65c

Flats and squares 50c extra, except Tulsa, where 5.14c is quoted. Phila. bar base 3.35c

COLD ROLL. STRIP

Boston 0.100 in., 500 lb. lots	5.20c
Buffalo	5.25c
Chicago (b)	5.65c
Cincinnati	5.80c
Cleve. (b)	5.55c
Detroit	5.40c
Phila. (c)	4.55c
New York	4.55c

(a) Rounds, hex. only.
(b) Net base straightening, cutting, boxing 1 ton or more.
(c) Plus mill, size and quantity extras.
(d) Minus quant. diff.
(e) New mill classif.
(f) Rounds only.
(g) Bessemer analysis extras included.
‡Domestic bars.
*Plus quan. extras.
**Less than 25 sheets.
*†50 or more bundles.

Scrap Cuts Ore Consumption

(*Concluded from Page* 11)

cent of the total, against 48 per cent in 1931; 44 per cent in 1930; and 42 per cent in 1929. The Corrigan, McKinney Steel Co. shipped more ore than it did in 1930, and only 20,000 tons less than it did in 1931. The six largest shippers, combined, accounted for 81 per cent of all the ore.

The Ford Motor Co.'s two mines shipped 61,000 tons, compared with 327,407 tons in 1931. Only one new mine was opened, the Greenwood, a property on the Marquette range developed by the Inland Steel Co., with 5054 tons. This company dropped leases on some of its Cuyuna range mines and acquired one or two on other ranges.

The amount of beneficiated ore shipped was 1,196,129 tons, 33 per cent of the total, compared with 34 per cent in 1931, and 39 per cent in 1930, reflecting the tendency to select the best grades of natural ore, when shipments are reduced. The Mesabi Iron Co.'s plant on the Mesabi range, representing the most costly and ambitious effort to concentrate commercially by magnetic separation and sintering the lean iron ores of the eastern Mesabi range, remained idle for the eighth consecutive year.

Lake Superior Iron Ore Shipments in 1931 and 1932

Mesabi Range

	1931	1932		1931	1932		1931	1932		1931	1932
Adams-Spruce Group	782,962	109,837	Harrison Annex	34,373	1,457	Mace No. 2	154,983	.....	Sellers	1,489,795	263,431
Agnew	62,996	18,437	Hartley-Burt-Palmer	1,312,914	345,676	Mahoning	808,213	1	Shenango	38,033	10,346
Albany	202,243	.....	Hawkins	128,461	51,568	Mahoning-Rust	7,151	.....	South Agnew	149,707	.....
Alexandria	146,622	.....	Hill Annex	425,276	.....	Margaret	151,020	12,781	Susquehanna	345,982	.....
Arcturus	310,111	.....	Hill Trumbull	202,479	.....	Mesabi Chief	456,894	221,742	Union	42,802	.....
Bennett	382,917	.....	Hoadley (Crosby)	90,157	.....	Minnewas	923,642	.....	Utica Extension	.....	38
Bruce	118,492	19,393	Holman-Brown	239,998	.....	Missabe Mt.	555,944	5,019	Wacootah	94,062	29,343
Burt-Pool-Day	168,799	5,053	Hull-Rust	1,144,430	144,028	Morris	148,491	37,200	Wade	.....	124,244
Commodore	4,719	.....	Kevin	40,337	.....	Morrison	549,017	.....	Wellington	151,987	.....
Dunwoody	198,960	.....	Kinney	21,289	.....	No. Harrison	147,668	.....	Wheeling	38,810	28,458
Fayal	227,315	73,730	La Rue	423,688	8 845	No. Harrison Annex	25,270	6,624	York	75,419	.....
Godfrey	514,814	237,243	Leonidas	867,480	10,406	North Star	56,416	.....	Total	15,270,411	1,934,719
Halobe	95,900	.....	Lincoln	70,415	.....	Patrick-Ann	113,746	13,337			
Harold	101,673	82,382				Quinn	26,056	.....			
Harrison	30,218	.....				Sargent	126,149	74,090			
						Scranton	243,116	10			

Menominee Range

	1931	1932		1931	1932		1931	1932		1931	1932
Aragon	77,168	.....	Chapin	216,150	.....	Judson	20,707	.....	Tobin	.....	9,802
Balkan	9,630	.....	Davidson Group	82,735	.....	Loretto	104,166	15,640	Virgil	79,497	4,551
Baltic	537	.....	Florence	7,847	.....	Monongahela	18,014	.....	Warner	79,430	.....
Bates	117,489	90,755	Fogarty	5,538	7,538	Odgers	.....	1,607	West Chapin	6,522	.....
Bristol-Youngstown	85,688	2,537	Genesee	.....	85,814	Penn Mines	50,471	.....	Zimmerman	35,300	7,582
Buck	17,295	.....	Hiawatha	116,444	41,446	RivertonGroup	64,568	.....	Total	1,469,290	307,721
Caspian	33,422	.....	James	69,953	.....	Rogers	169,692	40,449			
						Sherwood	1,027	.....			

Marquette Range

	1931	1932		1931	1932		1931	1932		1931	1932
Archibald	41,754	572	Gardiner-Mackinaw	18,871	.....	Maas	233,367	79,090	Tilden	137,010	19,957
Athens	167,965	6,055	Greenwood	.....	5,054	Morris-Lloyd	172,615	26,021	Volunteer	65,981	.....
Blueberry	232,970	46,333	Imperial	94,437	14,574	Negaunee	159,449	10,024			
Cambria	28,925	55,757	Isabella	56,297	.....	Princeton	7,891	.....	Total	1,809,445	357,262
Cleveland-Cliffs Group	112,820	29,806	Lake Superior-Holmes	137,279	.....	Richmond (new)	107,958	64,019			
Francis	9,233	.....				Stephenson	24,623	.....			

Gogebic Range

	1931	1932		1931	1932		1931	1932		1931	1932
Anvil	54,091	.....	Ironton	338,428	226,561	Plymouth	303,686	.....	West Davis	93,335	.....
Cary	66,584	.....	Keweenaw	60,446	.....	Plumer	.....	39,802			
Davis	16,276	.....	Montreal	555,336	320,235	Puritan	143,696	.....	Total	2,908,282	673,425
Eureka-Asteroid	8,174	50,420	Newport	263,295	.....	Sunday Lake	126,389	.....			
Geneva	468	.....	Norrie Group	585,356	.....	Townsite	31,348	36,407			
			Palms	18,692	.....	Wakefield	242,682	.....			

Cuyuna Range

	1931	1932		1931	1932
Algoma	59	.....	Louise	93,171	1,129
Alstead	49,377	.....	Mahomen	220	.....
Armour No. 1	156,748	16,146	Merritt	22,304	270
Armour No. 2	195,050	52,518	Merritt No. 2	202	.....
Croft	99,539	.....	Milford	77,244	.....
Evergreen	42,932	10,499	Portsmouth	43,557	4,510
Ferro	50	.....	Sagamore	34,375	25
Gloria	36	.....	Wearne	62,021	.....
Hillcrest	2,087	.....			
Ironton	18,442	13,640	Total	898,090	98,737
Joan No. 4	676	.....			

Vermillion Range

	1931	1932		1931	1932
Pioneer	579,730	172,980	Zenith	231,166	.....
Sibley	219,689	24,903			
Soudan	110,125	18,861	Total	1,140,710	216,744

GRAND TOTAL, gross tons	23,496,228	3,588,608

Construction and Enterprise

New Jersey

BRIDGEWATER, N. J. — Grimm Foundry Co. has been incorporated with $150,000 preferred and $150,000 common capital to operate a foundry, by Samuel Hemelsky, New Brunswick, N. J.

NEWARK, N. J.—Volco Wire Co. Inc. has been incorporated with 100 shares no par value to manufacture copper wire, by Alfred W. Aron, attorney, New York, Ralph S. Woodruff, Westfield, N. J.

Pennsylvania

BRACKENRIDGE, PA.—Allegheny Steel Co., has booked a large order for outboard motor parts for the Johnson Motor Co., Waukegan, Ill.

PITTSBURGH—American Barge Line has been awarded a contract for a river-rail landing and warehouse at Glassport, Pa., on the Monongahela river, to McClintic-Marshall Corp., Bethlehem, Pa. Of 10,000 square feet 6000 will be enclosed. Structural steel frames aggregate 100 tons.

Ohio

CLEVELAND—Forestek Plating & Mfg. Co. has been incorporated with 100 shares no par value, by Maurice Melinkoff, 811 Finance building, Cleveland.

CLEVELAND—Hy Press Castings Co., which recently took over the die castings division of the Lester Die & Machine Co., has leased 20,000 square feet in the former plant of the United States Rubber Co. at Grand avenue and Evins road, S. E. Wilfrid J. Mahon is secretary and treasurer, and Frank T. Goetz, vice president and general manager.

Michigan

ALBION, MICH.—Burns & McDonnell, Kansas City, Mo., have been selected as engineers to prepare plans for an electric power generating plant and distribution system.

DETROIT—Detroit Moulding Corp., 2730 Union Guardian building, has been incorporated with $50,000 capital to operate a foundry and machine shop and manufacture mouldings.

DETROIT—Herman Golanty Co., 5440 Cass avenue, has been incorporated with $2500 capital to deal in steel, iron and metals, by Marilyn Schwartzman, 12561 Third street.

MILAN, MICH.—Ideal Furnace Co. has been incorporated with $500,000 capital to manufacture boilers, furnaces, cooling and ventilating equipment, by Jesse S. Button, 16226 Princeton avenue, Detroit.

Indiana

AURORA, IND.—Stedman's Foundry & Machine Works, Aurora, has completed arrangements with John T. Hepburn Ltd., Toronto, Ont., to manufacture the products of the former for Canadian and British Empire trade. Products include crushing, grinding, pulverizing and screening machinery.

HAMMOND, IND.—Standard Steel Car Co. of Delaware has bought 17.6 acres adjoining its plant in Hammond for future expansion.

Illinois

CHICAGO—United Machine Works, 4215 Cottage Grove avenue, has been incorporated with $10,000 capital, by Lawrence Lenit, 134 North LaSalle street.

CHICAGO—Blanchard Electric Mfg. Co., 536 West Elm street, has been incorporated with $1000 capital to manufacture electrical appliances, by George R. Blanchard, 53 West Jackson boulevard, Chicago.

CHICAGO—Clinch & Co., 300 South Michigan avenue, has been incorporated with 500 shares no par value to conduct a general railway and electrical supply business, by Duncan L. Clinch and associates.

Southern States

TALLADEGA, ALA.—Newberry Bros. Pipe Fitting Co. has let contract for a new office and pattern shop.

WASHINGTON—Bureau of supplies and accounts, navy department, will take bids as follows: Feb. 7, schedule 9481, one motor-driven cutoff machine, schedule 9482, one motor-driven turret lathe and equipment, both for San Pedro, Calif.; schedule 9499, one motor-driven mechanical thermo-plastic molding press, for Portsmouth, N. H.; schedule 9520, one motor-driven knife grinder, for Norfolk, Va.; Feb. 14, schedule 9522, one motor-driven cutoff saw, schedule 9526, one motor-driven engine lathe, both for Mare Island, Calif.

BATON ROUGE, LA.—Fire caused damage of $50,000 to plant and equipment of the Baton Rouge Electrical & Machine Works.

MORGAN CITY, LA.—City has awarded contract to Fairbanks Morse & Co., Chicago, for construction and equipment of a waterworks and power plant, including three 1000-gallons per minute motor-driven pumps and two 400-kilowatt oil engine generating units.

NEW ORLEANS—Electrical Engineering & Contracting Co. has been incorporated to operate an electrical contracting and service business, by Edwin J. Fisher.

NEW ORLEANS—Bids will be received until Feb. 21 for swing span machinery and power plant in connection with construction of a bridge over East Pearl river between St. Tammany parish, Louisiana, and Hancock county, Mississippi.

Missouri

ST. LOUIS—Laclede Power & Light Co. announces it will install transformers and other equipment to cost $350,000 at its Union-Vernon avenue substation, now under construction. Laclede Gas Light Co. is planning a similar program, including expenditure of $300,000 in new line distribution. The company reports 2400 users of gas for heating, an increase of 1000 since it began supplying mixed gas last summer.

Oklahoma

TULSA, OKLA.—Southern Cornice Works has been incorporated to manufacture cornices and other sheet metal products, by J. W. Tidwell, 1430 South Utica avenue.

TULSA, OKLA.—Universal Metallizing Co. has been incorporated with $5000 capital to operate a metal-spraying shop, by Hugh Ownby, attorney, Ritz Theatre building.

TULSA, OKLA.—Crosbie & Moran Inc., Exchange Bank building, has let a contract for construction of a well-pressure gasoline plant on its properties near Henryetta, Okla. Investment will be about $50,000 in addition to considerable equipment already available.

Iowa

DAVENPORT, IOWA—Bee Line Mfg. Co. has been incorporated with $10,000 capital by Harry Englehart to manufacture tools and machinery.

DAVENPORT, IOWA—Old pattern shop of the Davenport Locomotive Works has been destroyed by fire with loss of $150,000.

Montana

CULBERTSON, Mont.—Army engineers have approved plans for a bridge over the Missouri river three miles from this city, 1160 feet in length, to cost $400,000. Bids will be called in time to begin construction about May 1.

Pacific Coast

ELLENSBURG, WASH.—City council is considering offer to purchase the plant of the Ellensburg Gas & Water Co. for $40,000.

SEATTLE—United Mole Trap Co., 443 Central building, has been incorporated to deal in machinery and tools, capital $15,000.

Dominion of Canada

VICTORIA, B. C.—Victoria Gas Co. has given contract to C. W. Brockley & Co., Vancouver, B. C., for two compressor units with automatic electric starting equipment in connection with its extension of gas main system in suburban districts.

LONDON, ONT.—Kellogg Co. of Canada has let contract for a building 50 x 100 feet as an addition to its plant here. Pigott Construction Co., London, Ont., is general contractor.

TORONTO, ONT.—Remington Rand Inc., New York, has organized a Canadian branch under the name of Remington-Rand Ltd., operating in a plant of 20,000 square feet at 468 Wellington street, Toronto, Ont.